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SECURITY CHALLENGES TAKE TOLL

Windows XP still under scrutiny

BY CAROL SLIWA

Differences of opinion continue to swirl over a potentially problematic Universal Plug and Play service in Microsoft Corp.'s Windows XP operating system.

The FBI's National Infrastructure Protection Center last week revised a recent security bulletin, removing a recommendation that systems administrators consider disabling the UPnP service in Windows XP.

After "careful review" of technical materials, the FBI

Windows XP, page 16

Threat will be high in 2002, experts say

BY JAIKUMAR VIJAYAN

The increased use of videoconferencing and Internet collaboration technologies, the rush toward Web services, and an emerging class of malicious code that blends virus and wormlike capabilities represent some of the biggest security challenges for 2002, according to analysts.

As was the case last year, users can also expect to see a sharp increase in the number of macro and script viruses that emerge. But major antivirus

Security Threat, page 16

UCITA CHANGES FAIL TO APPEASE

But opponents welcome ban on remote disabling

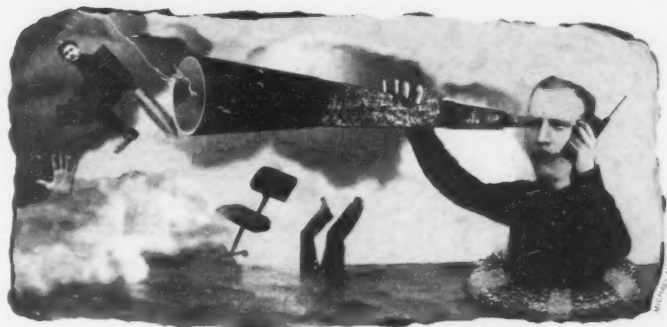
BY PATRICK THIBODEAU
WASHINGTON

The drafters of the controversial UCITA software licensing law have done an about-face

on some of its key provisions, including recommending a ban on remote system shut-offs by software vendors. But the changes don't appear to go far enough to win support from businesses fighting state-by-state adoption of the measure.

"These changes are not meaningful. They are more window dressing than real substance," said Elaine McDonald, an attorney at Princi-

UCITA, page 53



Beyond Bleak

More layoffs. Fewer hires. Disappearing perks and bonuses.

According to our annual hiring forecast, IT workers and job seekers can expect even more bad hiring news in 2002 as companies brace for continued staff reductions. And

don't expect relief anytime soon, as the debate rages over whether this is the worst IT job market in a decade, or ever. On a more uplifting note, many employers will maintain current salary levels and

The first in a series of articles on how to get hired, or stay employed, in today's turbulent IT job market.

Part one of this series begins on page 30.

IT Hiring 2002

IT HIT HARD IN EURO CURRENCY SHIFT

System resources take a beating; key tests ahead

BY LUCAS MEARIAN

European Union banks said they were pleased with the 12-nation conversion to the new euro currency last week. But experts suggested that the real test remains ahead for accounting applications, databases, spreadsheets and other business systems.

The long-anticipated cur-

rency swap in 12 of the 15 member nations of the European Union began Jan. 1. Despite years of planning, the scale of the final switch to a single currency stressed the IT systems behind the conversion.

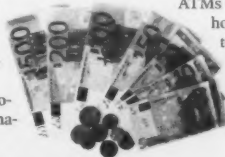
Europay International in Waterloo, Belgium, the leading European electronic-payments group, said automated teller ma-

chines and debit card withdrawals hit record levels in the first 24 hours after the euro's release.

Electronic authorizations by Europay were up 30% over the same period last year; two-thirds of those transactions were ATM withdrawals. Some ATM systems ran out of money. And in Austria, 2,600

ATMs shut down for an hour due to a system overload.

But, said Europay spokeswoman Cheryl Euro, page 53



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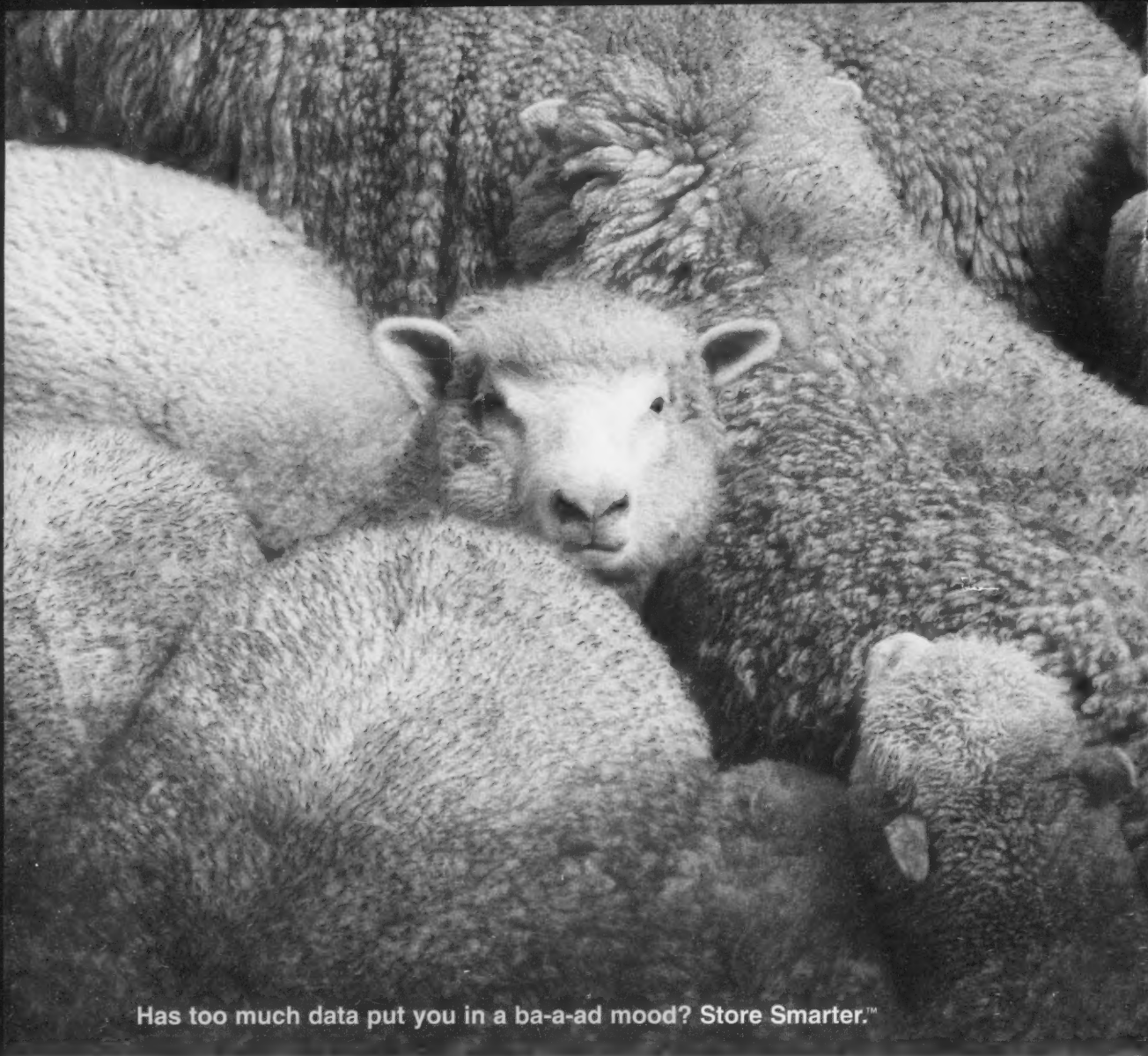
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ANTICIPARALLELISM

Most computers are idle most of the time, but in this week's Future Watch, we learn that researchers are finding ways to harness that wasted power and anticipate users' needs. **PAGE 43**



RECESSION? WHAT RECESSION?

In spite of all the talk about an economic downturn, the Internet is revolutionizing companies' supply chains and improving industrial productivity, argues PricewaterhouseCoopers' Grady Means. **PAGE 37**

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COMPUTERWORLD THIS WEEK

NEWS

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6 Major banks back technology that promises to enable the clearing of payments in one day instead of the three needed now.

7 Public-access wireless LAN availability gets a boost from a Sprint-backed start-up.

8 Security experts warn that both the public and private sectors need to do more to prevent a cyber-attack on the nation's critical infrastructure.

10 The WorldWide Retail Exchange raises eyebrows with an integration strategy that calls for two vendors to share the work.

12 Home Depot undertakes a massive remote desktop-management project to centralize control of its retail-floor terminals.

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www.computerworld.com/q?4000

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25 Paul A. Strassmann contends that IT-to-revenue benchmarks aren't necessarily the best approach to gauging the effectiveness of your tech spending vs. the competition's, since corresponding financial and employment structures are often different.

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34 Helping customers figure out what they need is better than just giving them what they want, argues Anthony W. Ulwick, who wrote an article on the subject in this month's *Harvard Business Review*.

38 Career Adviser Fran Quittel offers advice to a laid-off business analyst who's considering returning to college to complete his four-year degree.

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44 Security Journal: When an operations manager chooses to ignore security vulnerabilities, security manager Mathias Thurman must decide whether to confront the manager or let the matter drop.

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22 Pimm Fox writes that some IT is mission-critical, but most isn't. That means most technology should be judged on price and performance.

23 David Foote says it's not all doom and gloom for IT professionals as the new year begins. There are plenty of trends and new developments that could yield bona fide long-term career opportunities.

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ONLINE

LOOKING FOR FRAUD

Jeff King, product management director at CyberSource Corp. in Mountain View, Calif., offers tips on spotting potential online fraud. www.computerworld.com/ecommerce

SHE'D RATHER HAVE HER PAPER PLANNER

Community member Karen Black explains why she wants to lose her personal digital assistant and find a pencil and paper. www.computerworld.com/wireless

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AT DEADLINE

Dow Signs EDS to Expand IP Network

Plano, Texas-based Electronic Data Systems Corp. announced a six-year contract to expand an integrated voice, video and data network it's building for The Dow Chemical Co. in Midland, Mich. The deal calls for EDS to extend the IP-based DowNet network to facilities that Dow bought last year as part of two acquisitions.

Vendor Group Starts Piracy Grace Period

The Business Software Alliance, a Washington-based antipiracy group organized by Microsoft Corp. and other vendors, announced a month-long grace period that gives companies in seven metropolitan areas a chance to pay for unlicensed software they're using without being charged penalties. The locales being targeted include the San Francisco Bay area, Houston and Orlando.

VeriSign Proposes Domain Waiting List

Mountain View, Calif.-based VeriSign Inc. said it's working with SnapNames.com Inc. in Portland, Ore., to develop a waiting list service that would let companies line up to grab .com and .net domain names that aren't renewed by their current owners. VeriSign sent a proposal for the service to domain name registrars last month.

AMD Readies Faster Athlon Processor

Sources said Advanced Micro Devices Inc. in Sunnyvale, Calif., plans to announce a new high-end version of its Athlon XP microprocessor today, the same day Intel Corp. is expected to unveil a faster Pentium 4 chip (see related item, page 10). The 1.67-GHz Athlon XP 2000+ will be AMD's fastest processor for use in desktop PCs.

Banks' Project to Speed Payment Processing

More than a dozen institutions backing what could become an industry standard

BY LUCAS MEARIAN

SOME OF THE WORLD'S largest banks are backing a proposed industry standard that promises to secure business-to-business payments over the Internet and bolster straight-through processing (STP), or the ability to clear payments in a single day instead of the three days needed now.

Dubbed Project Eleanor, the proposed standard and its software for linking back-end systems would establish online authentication methods for banks and vendors and create standard database fields for computer-to-computer transactions. It's expected to be in place by mid-2002.

Identrus LLC, a New York-based vendor formed by a consortium of banks that has been building a public-key-infrastructure-based global system, has assumed ownership of Project Eleanor, which was originally a joint venture of several financial institutions.

ABN Amro Bank NV in Amsterdam, HypoVereinsbank in Munich, Germany, Sanwa Bank/UFJ in Tokyo and Wells Fargo & Co. in San Francisco are conducting in-house pilots of Project Eleanor. There's also a second wave of financial institutions that are planning to join the pilot program during the first half of the year.

Peter Landsmann, director of electronic banking services at HypoVereinsbank, said the major costs associated with Eleanor will involve integration with older back-end systems. But it will be worth it, he said.

"This will mean more straight-through processing for all the different participants: buyers, sellers and banks," said Landsmann, who estimated

that integration would cost his bank less than \$10 million. "Eleanor will offer risk management, timely information and integration into back-end systems, thereby streamlining processes," he added.

Agent of Change

Wells Fargo has already installed Project Eleanor's software from Sun Microsystems Inc.'s iPlanet E-Commerce Solutions on independent servers. The bank plans to begin a six-month pilot next month.

Jane Hennessy, a senior vice president at Wells Fargo, said that what attracted her company to the project was that payment terms can be built into the software and it has identification authentication from Identrus.

"This could result in much

greater control of cash flow. We'll be able to do transactions online without having to go off-line for payment initiation," she said. "I think it would change things dramatically for our customers, particularly those doing international transactions."

According to Needham, Mass.-based TowerGroup, the global securities industry will spend \$19.2 billion on STP projects between now and 2004. Global banks are making

heavy investments in an STP standard because a single payment and clearing standard would simplify conversion to local currencies and adherence to local regulations. That's because transaction rules would be built into software by in-country vendors or banks.

"The point is that currently, over-the-Internet companies first [make a sale] and then go off-line to close the deal and do the clearance using their respective software," Landsmann said. "You have two work streams: the purchasing work stream... and a payment work stream. With Eleanor, all of this can happen in one process." ■

Project Eleanor's Global Supporters

Pacific Rim: Australia and New Zealand Banking Group Ltd., Bank of Tokyo-Mitsubishi Ltd., Industrial Bank of Japan Ltd., National Australia Bank Ltd. and Sanwa Bank/UFJ

Europe: ABN Amro Bank NV, Barclays Bank PLC, BNP Paribas, Banco Santander Central Hispano, HSBC Holdings PLC, HypoVereinsbank, Royal Bank of Scotland/Natwest and Societe Generale Group

North America: Canadian Imperial Bank of Commerce and Wells Fargo & Co.

AIM Vulnerability Highlights Risk of Rushing Features

Flaw fixed but has major implications

BY JAIKUMAR VIJAYAN

The buffer overflow vulnerability discovered last week in the latest version of America Online Inc.'s popular AOL Instant Messenger (AIM) chat software shows how the rush to add new functionality to products continues to compromise security, analysts said.

Dulles, Va.-based AOL scrambled to fix a flaw in its AIM software that could let malicious attackers take remote control of a victim's system. Late last week, the company

developed a patch that addressed the problem.

The vulnerability involved a feature of AIM Version 4.7 that lets users invite other AOL members to play online games with them, said Matt Conover, a founding member of w00w00 Security Development, the online security research group that discovered the flaw.

The vulnerability was the result of an overflow in the code that handles a game request, according to Conover. An attacker could exploit the weakness to take control of a victim's system and then download and execute a malicious file from the Internet.

Conover described the vul-

nerability as "fairly difficult to exploit." But its implications are huge "and leave the door wide open for a worm not unlike those that Microsoft Outlook, IIS, et al. have all had," w00w00 cautioned.

Conover said that all Windows AIM users were vulnerable. Since the flaw wasn't related to the chat features, no prior conversation or authorization was required to exploit it, he noted.

The incident points to the problems that can arise when companies rush to add new functionality without fully testing it, said John Pescatore, an analyst at Stamford, Conn.-based Gartner Inc.

Within the past few months, almost every major vendor has had to acknowledge buffer overflow problems, which are often the result of basic programming errors, according to Pescatore. ■

Start-up Advances Public Access Wireless LAN Prospects

Hopes to boost Wi-Fi interest nationwide

BY BOB BREWIN

In the past year, Sky Dayton, founder of EarthLink Inc., has been looking for what he calls "the next frontier of the Internet." Now he thinks he has found it in the development of what he says will be the first company to offer easy access and subscriptions to public access wireless LAN networks around the country.

Dayton, who serves as chairman of Atlanta-based EarthLink, last month launched Boingo Wireless Inc. in Santa Monica, Calif. He said the new company will serve as a single point of contact and service for the fragmented public access wireless LAN market, much as EarthLink replaced the fragmented Internet service provider model of five years ago with a nationwide footprint.

Dayton also said the mobile data networks of the future will be a combination of high-speed wireless LANs and medium-speed wide-area cellular networks. Cellular operator Sprint PCS Group has bought into this idea, making an undisclosed investment in Boingo.

Bill Blessing, senior vice president for business development at Kansas City, Mo.-based Sprint PCS, said his company wants to offer "data to mobile users wherever they are, and in some places, that will be through wireless LANs." Blessing said Sprint PCS views its investment in Boingo as a chance to extend high-speed data services to users over Wi-Fi (802.11b) data networks and considers public access wireless LANs as a "great stimulant" to mobile data usage.

Blessing said Sprint PCS is also exploring the development of a dual-mode data card that would let users easily switch from Wi-Fi networks, which offer 10M bit/sec. of throughput in locations such

as hotels and airports, to the company's cellular network, which will eventually offer 144M bit/sec. of throughput to mobile users.

Sprint PCS isn't the first cellular carrier to dip into the public access wireless LAN market. VoiceStream Wireless Corp. in Bellevue, Wash., last week was nearing completion of an agreement it submitted to a bankruptcy court to purchase Richardson, Texas-based MobileStar Network Corp.

A Blend of Services

Boingo doesn't own or operate any public access wireless LAN networks. Instead, Dayton said, it will serve as an

AT A GLANCE

About Boingo

■ Start-up has signed agreements with service providers offering **10M bit/sec.** Wi-Fi service at 750 public access points across the country.

■ Boingo software automatically "sniffs out" public access networks and offers built-in authentication for multiple providers.

■ Software also features a **built-in virtual private network.**

■ Pricing ranges from **\$7.95** for one 24-hour session to **\$74.95** per month for unlimited access.

amalgamator of services already offered by companies such as Wayport Inc. in Austin, Texas, which provides airport public access networks, or Surf and Sip Inc. in San Francisco, which offers Wi-Fi service for independent coffee shops.

Boingo intends to sign up other Wi-Fi public access operators to its service as they emerge, eventually establishing a nationwide footprint, Dayton said. He added that Boingo could serve as a stimulus for the nascent market by driving traffic — and hence revenue — to its partners.

Boingo offers users one-stop shopping for wireless LAN service through software that sniffs out public access networks, including the free Wi-Fi networks that have started to pop up in major cities.

Boingo's software handles all authentication on disparate public networks and features a built-in virtual private network client, a key requirement for corporate users. It eliminates the need to subscribe to myriad public access networks, with

its single service and pricing model providing access to a growing number of service providers (see box).

A beta version of Boingo's software is available as a free download at www.boingo.com. It's due for final release later this month.

Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., called the founding of Boingo a "significant development" in the public access wireless LAN marketplace. The company could replace today's "hodgepodge of networks with a shaky financial structure" and offer the kind of truly national service needed to attract the interest and dollars of market professionals, said Reiter. ■

Quick Link

For more news and resources, visit our Mobile and Wireless Knowledge Center.

www.computerworld.com/q7k1000

PacificCare Outsources IT Operations to IBM, Keane

600-plus IT workers will transfer from HMO to vendors

BY BOB BREWIN

Medical services provider PacificCare Health Systems Inc. last week announced plans to outsource its IT operations to IBM and software consulting firm Keane Inc. in separate 10-year deals valued at a combined total of about \$1.2 billion.

PacificCare said it expects to save between \$380 million and \$400 million in IT costs over the life of the outsourcing contracts. The agreements include a planned transfer of 600-plus IT workers from the Santa Ana, Calif.-based health maintenance organization to IBM and Boston-based Keane, according to PacificCare spokesman Dan Miller.

PacificCare has 3.6 million

members and provides managed health care services for corporate insurance plans and Medicare beneficiaries in eight Western states and Guam. The company said the outsourcing move is part of a wider cost-cutting program that includes the elimination of about 1,300 jobs, or 15% of its workforce.

IBM will manage PacificCare's IT infrastructure in a deal that's expected to be worth more than \$761 million, according to IBM spokeswoman Nancy Kaplan, who said she couldn't disclose details on the functions that IBM will handle for PacificCare. But, she added, "in a typical outsourcing contract, we take over data center operations, manage the voice and data network and provide help desk services and PC support services."

Kaplan also declined to comment on how many of PacificCare's IT staffers will

be shifted to IBM. However, Keane spokesman Larry Vale said that between 250 and 275 PacificCare workers are expected to transfer to his firm, which will assume management of the HMO's application maintenance and development work.

PacificCare currently has an agreement in principle with Keane. Vale estimated that the final deal will have a value of \$450 million to \$500 million and said that the PacificCare employees who will be put on

Keane's payroll won't have to relocate from the facilities where they now work.

Miller wouldn't provide further specifics on the outsourcing plans. Howard Phanstiel, PacificCare's president and CEO, said in a statement that the restructuring and outsourcing program "further our efforts to operate as a single company under a uniform business model and technology platform and reduces our cost of doing business."

But Mark Anderson, a health care IT analyst at Anderson Consulting Group Inc. in Spring, Texas, said he's skeptical about whether PacificCare can get the full cost savings it envisions from the outsourcing deals.

The IT budgets of most health care organizations and hospitals "are a little high for the amount of work they get done," Anderson said. However, he added that he has "never seen an outsourcing agreement save a lot of money for an IT department" in the health care industry.

PacificCare said the deals will result in a fourth-quarter pretax charge of \$60 million. ■

Outsourcing Remedy

PacificCare's IT outsourcing plan includes the following elements:

► **The HMO has signed a pair of 10-year contracts, expected to be worth a total of about \$1.2 billion, with IBM and Keane.**

► **IBM will manage PacificCare's IT infrastructure, and Keane will take over application development and maintenance.**

► **More than 600 PacificCare IT workers will be shifted to the two outsourcing vendors.**

Critical Infrastructure Systems Face Threat of Cyberattacks

Officials: Security holes need to be fixed

BY DAN VERTON

AS THE four-month anniversary of the most devastating surprise attack on the U.S. since Pearl Harbor approaches, national security experts are beginning to piece together a puzzle that nobody wants to see completed.

Had the terrorists that struck on Sept. 11 been able to launch a simultaneous cyber-attack against the nation's critical private-sector infrastructure, the ripple effect of the initial attacks could have been far more devastating, experts said.

The attacks "could have been a lot harder on the nation's economy had a cyberattack accompanied them," Bill Crowell, CEO of Santa Clara, Calif.-based Cylink Corp., said last week. Crowell, a former deputy director of the National Security Agency, added, "We were just lucky that these guys were so focused on this one gigantic, horrible event."

Jeff Morris, a member of the Washington State House of Representatives, said the

events of Sept. 11 should be enough to make every state government and private business begin to think about the vulnerability of the computer systems and networks that support critical infrastructures.

The nation's electric power grid, telecommunications networks, gas and oil pipelines, and emergency services "were built by the private sector for efficiency, not redundancy," said Morris, who is also president of the Pacific Northwest Economic Region (PNWER), a partnership formed between the governments and businesses of five U.S. states and three Canadian provinces.

A Call to Action

Although many large companies have been "fairly responsive" to the effort to protect key systems, others, such as some small telecommunications firms, are just now opening their eyes, said Morris. "It never occurred to them that the power grid might fail because there's no natural gas," said Morris, referring to the fact that natural gas powers

many of the generators that produce the nation's electricity.

"The reality is that some companies didn't even have a security officer on staff before Sept. 11," he said. "It would have been far worse if a cyber-attack had occurred." Such a disruption at power plants in the Canadian province of Alberta, for example, could have created a ripple effect throughout the U.S., making Sept. 11 a bicoastal emergency.

Canada supplies most of the natural gas and a large percentage of the electricity consumed in the U.S. The loss of one specific core switching station, the identity of which can't be disclosed for security reasons, could severely impact the flow of natural gas in the U.S., said Matt Morrison, vice president of PNWER. The same is true for power plants in the Quebec area, which provide critical services to the northeastern U.S.

The PNWER plans to hold a second infrastructure protection planning conference in Seattle in March, following one held in November. The goal is to create a list of the most important systems and the impact on the region if they were to fail due to an attack, said

Morris. Moreover, PNWER plans to deploy software developed by the Argonne National Laboratory in Argonne, Illinois, that would alert state officials to infrastructure failures in Canada and predict the impact on U.S. systems.

In addition, the states and companies involved in PNWER plan to form a limited liability corporation to facilitate security data sharing. The corporation

will coordinate with regional emergency management offices.

Still, the window of opportunity to fix glaring security holes in the nation's defenses is rapidly closing, said Frank Cilluffo, an analyst at the Center for Strategic and International Studies in Washington.

"Bits, bytes, bugs and gas will never replace bullets and bombs as the terrorist weapon of choice," Cilluffo told the Senate Government Affairs Committee a month after the terrorist attacks. However, "while [Osama] bin Laden may have his finger on the trigger, his grandson may have his finger on the mouse." ■

Cylink Chief Backs GovNet Proposal

When Richard Clarke, the newly appointed chairman of President Bush's Critical Infrastructure Protection Board, first proposed creating a separate intranet for critical government services and e-commerce, many in the IT industry called the plan impractical. Critics said there was no possibility that private companies would walk away from the Internet.

That was last May, four months before Sept. 11 demonstrated how vulnerable to disruption corporate data could be. Now, the Bush administration's plan to disconnect critical government services from the public Internet, known as GovNet, has a new ally in Silicon Valley: Bill Crowell, CEO of Santa Clara, Calif.-based Cylink Corp. and a former deputy director of the National Security Agency.

Crowell is the first high-profile CEO from the IT industry to pledge full support for GovNet. He has even gone so far as to call for the private sector to create similar private networks.

"The GovNet idea has triggered an interesting rethinking of networks," Crowell said last week. "Core operations, such as human resources and finance, should be on private networks and fully protected. That gives you defense in-depth on mission-critical operations. The mad rush to put all of

these critical things onto the Internet has been arrested as a bad idea."

Multinational corporations and large financial institutions are already moving in this direction, said Crowell. It's a matter of building high-speed connectivity that can survive in the event of a catastrophe and is more difficult for attackers to break into, he said.



CROWELL: Core operations should be on private nets.

High-speed Asynchronous Transfer Mode networks that use link encryption are one example of such technology. Link encryption, sometimes called link layer encryption, is the process of encrypting information at the data link level as it is transmitted between two points within a network. "There's no place to get into the network," said Crowell. "It's much harder for an attacker to get through all of that switching fabric, as opposed to the router fabric."

There are also economic advantages to GovNet-like networks, he said. "Most companies have been living in the T1 world and are hoping to move to the T3 world," said Crowell. "We can aggregate [network capacity]. T3 has been getting a lot cheaper than an equal number of T1s. If you move to the large pipes, you can get to prices below ISP costs."

— Dan Verton

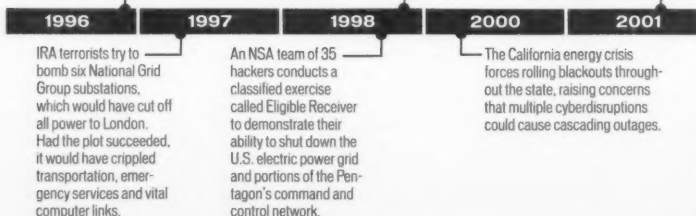
The Grim Reality

The vulnerability of critical infrastructure has been demonstrated repeatedly in recent years.

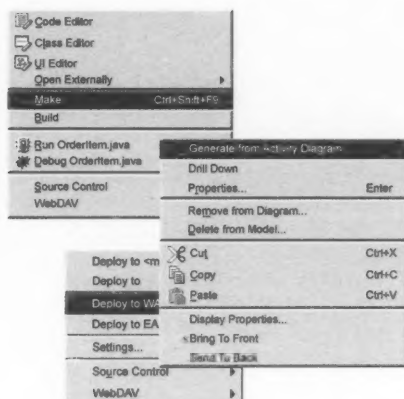
A Swedish man, working from his home in Goteburg, disables portions of the U.S. emergency 911 system in southern Florida.

A teenager whose name is withheld by authorities is charged with hacking into an FAA control tower at Massachusetts' Worcester Airport and disrupting vital systems for six hours.

Terrorist attacks bring down the World Trade Center towers in New York, killing thousands, knocking out critical financial transaction networks and causing an overload of the telecommunications grid.



Oracle vs IBM Java Development



Oracle

Online auction application
zero lines of handwritten code



IBM

Online auction application
166 lines of handwritten code
Source: IBM Web Site

ORACLE®

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BRIEFS

Judge to Consider Bid For Microsoft Delay

The judge presiding over the Microsoft Corp. antitrust case scheduled a hearing for today on a request by the company to delay behavioral remedy proceedings. The nine states that have refused to sign a settlement proposed by Microsoft and the U.S. Department of Justice urged Judge Colleen Kollar-Kotelly to deny the request to postpone a remedy hearing set for March.

Health Insurer, Perot Extend Outsourcing

Wellesley, Mass.-based medical insurer Harvard Pilgrim Health Care Inc. signed a two-year extension of an IT and claims services outsourcing deal with Perot Systems Corp. in Dallas. The two companies said the extension is expected to add \$110 million in value to the 10-year, \$700 million outsourcing contract that they agreed to in late 1999.

Intel Set to Launch New Pentium 4 Chip

Sources said Intel Corp. today plans to release a 2.2-GHz version of its Pentium 4 microprocessor that is also the company's first chip to be made using a new manufacturing process based on 0.13-micron technology. That process is expected to let Intel reduce the size of the chip while increasing its built-in secondary cache. Intel confirmed that the 2.2-GHz chip is due out this month.

Short Takes

The Bush administration said it's easing restrictions on exporting computers to countries such as Russia, China, India and Pakistan. . . . Southfield, Mich.-based online exchange COVISINT LLC said it's adopting some of the XML standards developed by the ebXML initiative and Atlanta-based OPEN APPLICATIONS GROUP INC. but will wait for others to mature.

Retail Exchange Taps IBM, WebMethods for Integration

Rival tools to be offered to members, but analysts say overlap may cause problems

BY CAROL SLIWA

THE WORLDWIDE Retail Exchange LLC (WWRE) announced late last month that IBM and webMethods Inc. will provide integration technology that its 59 members may need in order to participate in its electronic marketplace.

Although analysts said the move showed ongoing progress for the WWRE at the close of a year in which many business-to-business exchanges struggled, it also raised some eyebrows, because products from IBM and Fairfax, Va.-based webMethods offer some of the same functionality.

"Most organizations would not pick two integration vendors, since it significantly complicates the task of implementation," said Ken Vollmer, an analyst at Cambridge, Mass.-based Giga Information Group Inc. Citing an example of the possible consequences, he said insiders told him that Oracle Corp. and Commerce One Inc. "were tripping over each other" working on the automobile industry's Covisint exchange until divisions of labor were established.

WWRE CIO Don Norman said the retail exchange wanted to give its members a choice of integration technologies. "I think competition's healthy," he said. "It brings out the best in everybody that's competing, and it's to the benefit of the WWRE and its members."

Norman also noted that IBM has global presence among the exchange's members, many of which "are very committed to an IBM architectural strategy," whereas webMethods is still "reaching to be global."

The Alexandria, Va.-based

WWRE boasts some of the world's largest retailers as members, including Albertson's Inc., Best Buy Co., CVS Corp., Gap Inc., J.C. Penney Co., Kmart Corp., Rite Aid Corp., Royal Ahold NV, Safeway Inc., Target Corp. and Walgreen Co.

Both IBM and webMethods will provide technology to support the internal application-to-application integration of the exchange's core product and services platform, as well as business-to-business integration between the exchange's applications and its members' internal systems, according to a WWRE statement. The rival software products also offer business process management capabilities.

Simplified Integration

The WWRE said that by deploying webMethods and IBM products, it hopes to lower integration and implementation costs, improve collaboration among trading partners, simplify integration and accommodate disparate applications that its global members use.

Randy Covill, an analyst at

B2B Tool Box

The WWRE has used the following technologies:

- **Negotiations and auctions:** Ariba Inc.
- **Collaborative planning, forecasting and replenishment:** i2 Technologies Inc.
- **Supply chain visibility:** i2
- **Online procurement:** i2 (RightWorks)
- **Product design and development:** i2
- **Catalog:** i2
- **Hosting:** IBM

SOURCE: WORLDWIDE RETAIL EXCHANGE, ALEXANDRIA, VA.

Boston-based AMR Research Inc., said the selection of an integration vendor signals progress. "It's not that selecting a vendor is a guarantee of success. But if you're not doing that at all, then you can't advance to the next level of services," Covill said.

The dual vendor selection, however, has Vollmer concerned about "the potential for key business processes to be modeled inconsistently in the two different products." That "could lead to a very undesirable situation where the execution of a single business pro-

cess would yield different results for different members," he said.

Officials at webMethods and IBM acknowledged that they compete in some areas. "It will all come down to execution," said Patrick Condon, senior manager of product marketing at webMethods. "Everyone wants to talk about business process management and integration, and there's only a few of us who can really do it."

Existing Relationship

The WWRE already has a relationship with IBM, which hosts the exchange's applications and did the systems integration work necessary to get the exchange up and running. But Norman said the WWRE is currently in the final stages of transitioning out of that systems integration contract. "The WWRE is managing its own systems integration efforts, and IBM will be one of the partners who will be involved in that effort," he said.

Jan Jackman, vice president of strategic business development for IBM's software group, said her company will promote open-standard interfaces between the WWRE's trading partners, as opposed to the "proprietary protocols" that webMethods uses. ■

Pentagon Integrates Procurement Data

The WWRE isn't the only big organization that's turning to webMethods for business-to-business integration help. The U.S. Department of Defense (DOD) last week said it will use the software vendor's tools to blend product catalogs from online exchanges with ones from suppliers that are already plugged into its Web-based procurement system.

By early next month, Pentagon employees are due to get access to more than 30,000 new suppliers through Sunnyvale, Calif.-based Ariba Inc.'s Commerce Services

Network. WebMethods was tapped to integrate data between Ariba's network and the DOD's internal marketplace and procurement system, called Electronic Mall (EMall).

Don O'Brien, EMall program manager at the Defense Logistics Agency, said DOD workers will be able to search for goods using keywords, manufacturer names or universal product code numbers. The webMethods technology will let them see all relevant product information on a single screen instead of having to separately look through

multiple online catalogs, he added.

Online aerospace exchanges, such as Reston, Va.-based Exostar LLC and Irving, Texas-based Aeroexchange Ltd., are due to be added to the EMall system in the summer, again via the webMethods software. In all cases, O'Brien said, data will be boiled down to provide easy access for end users.

"Our main requirement was that it has to be absolutely seamless," he said. "Otherwise, people won't be able to use it." The DOD is paying webMethods \$275,000 for a two-year license, O'Brien said.

- Michael Meehan



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COMMUNICATION WITHOUT BOUNDARIES

Home Depot Seeks Remote Control of the Desktop

Retailer plans to use new management tools to centralize software updates

BY MICHAEL MEEHAN

THE HOME DEPOT Inc. has scheduled a major spring improvement project in which it plans to install a remote desktop management system for use by help desk workers at its corporate headquarters.

The Atlanta-based retailer is looking to gain central control of Windows 2000-based inventory management and retail-floor terminals that are being installed to replace DOS systems in its 1,300-plus stores. To do that, Home Depot in March will start deploying remote management software developed by Waltham, Mass.-based On Technology Corp.

Mike Anderson, Home Depot's vice president for information systems, said that by year's end, the company will have On Technology's On Command CCM technology running on about 17,000 Windows 2000 PCs. IT workers will then be able to remotely install and update the operating system and applications used by the machines.

The management tools will also be included on new Windows systems as the company retires its remaining DOS workstations.

Anderson said Home Depot hopes to have 90,000 PCs plugged into the remote management system by the end of 2004. He declined to comment on how much the project is expected to cost. The company is also preparing for a major overhaul of some of its core IT systems.

Currently, Home Depot has to update and service in-store PCs by sending technicians into the field or shipping disk drives back and forth.

"Now I'll be able to push a button and upgrade Windows on terminals out there," Anderson said.

The technology being implemented by Home Depot "is not very sexy, but it definitely is mission-critical," said Valerie O'Connell, an analyst at Aberdeen Group Inc. in Boston.

Desktop management is often seen as purely an IT function, but the Home Depot project should be interesting "because I'm sure they're closely

tracking the ROI on this," O'Connell said. "If the numbers turn out good, then you might see a lot of other companies getting interested."

But such initiatives are "nontrivial undertakings," she added.

Renewed Interest

Kurt Schlegel, an analyst at Meta Group Inc. in Stamford, Conn., said he expects to see a resurgence of interest in desktop management technology this year. "It was something people last cared about leading up to Y2k, and they've just sort of stuck with what they had since then," he said.

But vendors such as On Technology, Microsoft Corp. and Novell Inc. have made significant upgrades in the past few years, Schlegel noted.

For example, he said, Nov-

ell's ZENworks workstation management product is now operating-system-agnostic and offers imaging tools to help users combat bandwidth constraints.

At Home Depot, the in-store PCs will be updated from centralized Unix servers. Anderson said help desk workers will also be able to remotely take control of systems to perform troubleshooting or provide support to end users. ▀

Central Control

The benefits that Home Depot expects to get by deploying a centralized desktop management system include the following:

- Automated distribution of operating system and application upgrades to inventory terminals in stores
- One-click disaster recovery and system rebuilds
- The ability for help desk staffers to monitor and operate any PC or server on the company's network
- IT asset-tracking capabilities for capturing data such as what systems are installed at different locations and how they're configured

Faster Firewall Helps Retailer Speed Web Transactions, Despite Increase in Volume

J. Crew shortens holiday order processing times

BY JAMES COPE

Although some online retailers kept holiday shoppers queued for nearly 15 sec. while their Web transactions were processed, Jcrew.com rang them up in an average of just over 4.5 sec., according to performance measurements conducted by Keynote Systems Inc.

The transaction performance achieved by the online unit of New York-based J. Crew Inc. was partly due to a new firewall system that the retailer had its Web hosting provider, Digex Inc., deploy prior to the start of the holiday rush, said J. Crew CIO Paul Fusco.

Based on J. Crew's experience, Laurel, Md.-based Digex last week announced that it will make the firewall system, which is built around technol-

ogy from Espoo, Finland-based Nokia Inc. and Redwood City, Calif.-based Check Point Software Technologies Ltd., available as a service to other corporate users.

Although firewalls can help to maintain security during e-commerce transactions, they can also slow down communications between shoppers and

online order processing systems, said Matthew Berk, an analyst at Jupiter Media Metrix Inc. in New York.

For example, Fusco said, J. Crew "ran some simulations where we choked our old firewall." That result, along with projections that more of the company's catalog sales will eventually be moved online, prompted J. Crew to test three new firewall systems last year. Fusco wouldn't name the other products tested.

Fusco said that during the latter part of 2001, J. Crew's online transaction volume increased by more than 30% compared with the same period in 2000. But the company reduced its average transaction processing time, according to Keynote's measurements — a result that Fusco attributed primarily to the new firewall.

San Mateo, Calif.-based Keynote said Jcrew.com was among the top four of the online retailers it checked for trans-

action speed during the holiday season. The other sites were owned by Plano, Texas-based J.C. Penney Co., Seattle-based Nordstrom Inc. and eToys.com, which is owned by KB Holdings LLC in Pittsfield, Mass.

Holiday Onslaught

J. Crew had Digex install Nokia's IP740 firewall appliance in September so it would be ready for the onslaught of online holiday shoppers, according to Fusco.

The IP740, which is made by the Nokia Internet Communications unit in Mountain View, Calif., is a hardware device that integrates Check Point's Firewall-1 software.

Berk said special-purpose firewall appliances such as the IP740 can often increase performance compared with installations in which firewall software is installed directly on servers also running order processing applications.

But the kind of setup being used by J. Crew isn't cheap. Digex said the high-speed firewall service costs \$3,755 to \$7,450 per month, as much as 40% more than its standard firewall offering. ▀

Online Speed

A year-to-year comparison of the transaction processing performance on J. Crew's Web site:

Week of Dec. 10, 2000:
6 sec. to complete a transaction, on average
Week of Dec. 9, 2001:
4.23 sec. to complete an average transaction, with an increase of more than 30% in transaction volume.

SOURCE: KEYNOTE SYSTEMS INC., SAN MATEO, CALIF.



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BRIEFS

U.K. Defense Agency Slows IT Project

The U.K. Ministry of Defence has scaled back the rollout of a new spare-parts procurement system due to budget constraints in its fiscal year ending in March. The system is based on software developed by Atlanta-based Indus International Inc., which said it will try to offset any impact on its revenue by re-assigning workers and making unspecified cost reductions.

Co-Founder Quits CEO Job at J.D. Edwards

Denver-based J.D. Edwards & Co. said co-founder C. Edward McVane has stepped down as CEO for the second time. McVane, who had returned to the job two years ago after initially giving it up in late 1998, will also stop serving as chairman of the software vendor's board in March. He's being replaced as chairman and CEO by Robert Dutkowsky, previously an executive at Boston-based Teradyne Inc.

IBM Releases New Xeon-Based Servers

IBM late last month started shipping servers based on the new multiprocessor version of Intel Corp.'s Pentium III Xeon chip. The eServer x360 machines support four to 16 of the Xeon MP devices and are the first Intel-based systems built around a new architecture that, according to IBM, provides mainframe-like management tools.

Short Takes

PEREGRINE SYSTEMS INC., a San Diego-based vendor of asset management software and other applications, warned that it expects to report a loss for its third quarter ended Dec. 31. . . . Horsham, Pa.-based VERTICALNET INC. said it's buying Atlas Commerce Inc., a Malvern, Pa.-based vendor of software for private online exchanges.

Caterpillar Digs Into Agile Development

Modular programming approach used to deliver multimillion-dollar app suite

BY LEE COPELAND

TO SPEED the development of a critical Web-based financial system for its dealers all over the world, Caterpillar Financial Services Corp. made Agile programming methods part of the project.

Launched at year's end, Caterpillar Financial's application suite, called ExpressTrack, took three years to build and cost several million dollars. But because the Nashville-based subsidiary of Caterpillar Inc. used Agile methods, it had small, usable parts of the Java-based application ready early in the development process, said Tom DePauw, manager of IT at Caterpillar Financial.

Agile development techniques call for keeping code simple, testing often and delivering small, functional bits of the application as they are ready. The idea is to build from those parts rather than deliver one large application at the end of the project.

First Things First

"Far too much business value is lost in software development projects because everyone wants to get to the final solution before deployment," DePauw said.

He credits ThoughtWorks Inc., the Chicago systems integrator that developed the application, for infusing the project with Agile methods.

"We agreed on the big vision," said Roy Singham, CEO of ThoughtWorks. "The reality is that you can't deliver every business requirement in the first release."

ThoughtWorks started the project in March 1999 and delivered a vital credit rating

analysis application six months later. By taking a modular approach, only 5% of code was discarded as requirements changed, DePauw said.

Analyst John Dalton at Forrester Research Inc. in Cambridge, Mass., said more companies are experimenting with Agile methods because traditional waterfall techniques, in which each step is completed before moving to the next stage, require lots of upfront planning, are time-consuming and often miss the mark as

business requirements evolve.

To avoid these pitfalls, ThoughtWorks delivered functional parts of the application, such as credit approval, pricing and document preparation, every three to four months.

When Peoria, Ill.-based Caterpillar began expanding its core business three years ago to include less-expensive compact equipment, Caterpillar Financial needed to transform its systems to support Web-based transactions with its dealers as opposed to the lengthier mortgage-type financing process used for machines with sticker prices up to \$2 million. Previously, it took as many as 10 days to process financing; the

Agile Advantages

Agile programming methods yielded the following benefits for Caterpillar Financial in the development of its financial services system:

- ▶ **Less upfront planning time**
- ▶ **Functional parts of the application delivered quickly**
- ▶ **Process was more responsive to changes in project requirements, resulting in less discarded code**

new system reduces the transaction to approximately 30 minutes.

About 60 U.S. dealers access the browser-based system, which connects to a back-end document management, transaction processing and third-party financial services systems. Caterpillar plans to roll out the application to dealers in Australia, Canada and France this year. ▀

Chicago Seeks Proposals for Building Public/Private MAN

City wants vendors to develop, manage broadband setup

BY JAMES COPE

The city of Chicago has issued a formal request for proposals (RFP) on a groundbreaking metropolitan-area network (MAN) project to a shortlist of 22 vendors and service providers. It expects to get responses by late March.

The project, called CivicNet, is aimed at bringing a broadband network with integrated data, voice and video capabilities to every nook and cranny of Chicago over the next 10 years. But most of the cost isn't expected to land on the Windy City's shoulders. City officials are looking for private-sector companies to build and manage the network. The city government, which has an annual telecommunications budget of

more than \$30 million, would be the anchor tenant.

The RFP was issued late last month, and vendors have until March 29 to respond, CivicNet project manager Doug Power said last week. The request was issued to a set of prequalified vendors, most of which have shown an interest in the project from its inception. But Power said newcomers can also respond to the RFP.

Chicago Mayor Richard M. Daley announced plans for CivicNet early last year. The project has already moved through the design feedback and vendor qualification stages. Power said the RFP was sent to networking equipment makers, telecommunications service providers and systems integrators, including Cisco Systems Inc., Electronic Data Systems Corp. and SBC Communications Inc.'s Ameritech division.

The plan to have vendors

create the framework for designing, building and ultimately managing the MAN is a key idea behind CivicNet, according to Joe Mambretti, a professor at Northwestern University, who has been consulting on the project.

John Mazur, an analyst at Gartner Inc. in Stamford, Conn., said he wouldn't be surprised to see multiple consortia of vendors evolve from the RFP responses. That would be one way for vendors to get their arms around the CivicNet project, Mazur said.

For example, he said, two or three large technology vendors, a communications service provider and a systems integrator could team up and pull in other companies as the project proceeds.

Power said he expects to receive 10 to 15 RFP submissions, which he characterized as "design-and-build conceptual responses." After that, he added, city officials "will be asking for specifics on how [vendors] plan to do it and how much it will cost" before awarding any contracts for the project. Contracts are to be issued late this year or early next, he said. ▀

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Continued from page 1

Windows XP

agency stated that it is "satisfied" that a patch corrects a vulnerability that could lead to system compromise and "affords substantial and adequate protection" against the critical vulnerability that could lead to denial-of-service attacks.

But some security experts continue to recommend that, in addition to installing the patch, users disable the UPnP service, which lets PCs discover and use newly added network-based devices, such as printers, that advertise themselves as being available.

Marc Maiffret, chief hacking officer at Aliso Viejo, Calif.-based eEye Digital Security, the security firm that notified Microsoft about the UPnP vulnerabilities shortly after Windows XP was launched, charged that the UPnP protocol is "half-assed" and needs to be scrutinized more closely with security in mind. "Until they actually redo it, it's not something people should be using," Maiffret said.

"It just allows for a lot of ways that you can manipulate systems or services to basically use UPnP to either hide attacks or use UPnP as a jump point for other attacks," Maiffret said. Microsoft's patch fixes the problem "as far as what we know now," but since people aren't using UPnP, the service should be disabled, he said.

Russ Cooper, an analyst at TruSecure Corp. in Herndon, Va., and moderator of the Windows NTBugTraq mailing list, said UPnP "offers many more opportunities for problems," and Microsoft shouldn't have released the UPnP capability until the protocol was well thought out.

"Microsoft had to modify the UPnP protocol as defined by the UPnP Forum in order to patch against vulnerabilities demonstrated by eEye," Cooper said. "If the only way to protect against the vulnerabilities is to modify the protocol, the protocol is flawed."

The first version of the UPnP architecture was ratified in June 2000 by the UPnP Forum, a nonprofit group of more than 400 vendors from the consumer electronics, computing, home security, home appliance, computer networking and related industries. The forum defined and published UPnP device and service descriptions to help devices connect to each other and simplify home networking.

Mark Lee, chairman of the UPnP Forum and a lead Windows product manager at Microsoft, said the forum has a security working committee that proactively looks to make sure that UPnP is a secure technology and checks out various scenarios in which UPnP technology is going to be used. He said the UPnP Forum is open to input from industry participants. "If there are ways to make the technology better, we're ready and able to listen," Lee said.

A Microsoft spokesman said

JUST THE FACTS

The Problem

VULNERABILITY: Affects the Universal Plug and Play service in Windows XP, ME, 98 and 98SE.

SEVERITY: Critical

PATCH RELEASED: Dec. 20, 2001

RECOMMENDATION: Microsoft urges Windows XP users to apply the patch immediately. Users of Windows ME, 98 and 98SE should apply the patch if UPnP is installed and running.

the company remains committed to UPnP technology and doesn't believe that "enabling UPnP in and of itself poses a security risk."

"There is great customer interest in UPnP, especially as more UPnP-capable devices are becoming available," said Scott Culp, manager of Microsoft's Security Response Center. "Folks who don't want UPnP can certainly turn off the service, but just applying the

patch is sufficient to return it to safe operation."

Roger Garipey, chief information technologist at Air Products and Chemicals Inc. in Allentown, Pa., said he's not sure he would "turn on a system that allows non-directly-attached devices to automatically plug into the PC." He added, "I don't think we're going to have a lot of UPnP-capable devices in the corporation."

The UPnP service is enabled by default in Microsoft's Windows XP operating system, which was launched Oct. 25. It can be activated in Windows ME and installed in Windows 98 and 98SE via the Internet Connection Sharing client that ships with XP.

Maiffret said eEye Digital Security notified Microsoft about the denial-of-service vulnerability in the UPnP service on Oct. 26. He said the firm told Microsoft about two more vulnerabilities, distributed denial of service and

buffer overflow, in November.

Microsoft announced the vulnerabilities on Dec. 20, upon releasing its patches. A company spokesman defended the time lag, noting that the company had to develop patches for four operating systems with more than 20 language versions for each.

"All told, we developed well over 100 different versions of the patch," the spokesman said. He also noted that the testing requirements were significant. "Our testers worked around the clock to complete the testing in time to release the patch prior to Christmas week."

Garipey noted that security vulnerabilities aren't unique to Microsoft. "All operating system vendors need to address this far more seriously than they have in the past," he said. ▀

Quick Link

Security concerns have made Gartner wary of other new features in Windows XP.

www.computerworld.com/q?26214

Continued from page 1

Security Threat

software programs should be able to handle most malicious software relatively easily.

"The bottom line of malware prevention remains the same: Filter, patch strategically and update your antivirus software. Use common sense to protect your network's vulnerabilities," said Roger Thompson, an analyst at Herndon, Va.-based security firm TruSecure Corp.

The rush by corporations to set up videoconferencing and Web seminar capabilities after Sept. 11 presents a particularly serious security risk for companies that aren't careful, said John Pescatore, an analyst at Stamford, Conn.-based Gartner Inc.

Users this year can expect to see at least one widespread attack that tries to exploit openings in enterprise firewalls created during the frantic push to set up these capabilities, Pescatore said. Corporations' ac-

celerating efforts to link their internal applications with those belonging to external partners and suppliers using technologies such as XML and Simple Object Access Protocol are another source of concern, Pescatore said.

Increasingly, companies are opening new ports on their firewalls to let outside applications talk with inside applications, "even though the security aspects of doing so are totally unproven," Pescatore said.

"The rush toward Web services will result in glaring holes," he cautioned. "2002 is not the year to jump on Web services."

Malicious code that blends virus and wormlike features and is designed to take advantage of multiple software vulnerabilities also poses a major threat, said Thompson.

One example of this emerging class of threat was last year's Nimda worm, which wreaked havoc on enterprise networks around the world. Unlike previous malware, Nimda spread both via the Internet and e-mail, taking advantage

of multiple vulnerabilities.

Expect to see more sophisticated variants of Nimda this year, Thompson warned. Dealing with them will require constant attention to patching, intrusion monitoring and updating antivirus suites, he added.

Common Viruses

The 10 viruses most frequently reported to Sophos Anti-Virus in December:

VIRUS	PERCENTAGE OF ALL VIRUS REPORTS TO SOPHOS
W32/Badtrans-B	92.4%
W32/Goner-A	1.0%
W32/Magistr-B	0.9%
W32/Sircam-A	0.7%
W32/Magistr-A	0.5%
W32/Hybris-B	0.3%
W32/Nimda	0.2%
W32/Shoer-A	0.2%
W32/Nimda-D	0.2%
W32/Apology-B	0.2%

*Figures in right column indicate the percentage of all calls Sophos received in December that mentioned each virus.

The wireless security industry will also receive significant attention in 2002, said David Lelievre, a project manager at Clinton Township, Mich.-based application service provider Twiddle Information Services Inc. "The wireless Internet will emerge as the leading trend for the next three to five years. Security will have to be defined and established before the market hits full force," Lelievre said.

Also expect to see a lot of vendor consolidation this year, especially in the managed security services arena, said Eric Hemmendinger, an analyst at Boston-based Aberdeen Group Inc. Corporations entering first-time relationships with security vendors need to pay special attention to the financial stability of the companies and their customer bases, Hemmendinger warned. "We are going to see some very public debacles in the security space this year," he predicted.

"The caution here for users is you can't afford not to do due diligence" before choosing a security vendor, he said. ▀

Boeing Gets FCC License for Internet Service on Planes

BY LUCAS MEARIAN

The Boeing Co. has been granted a license by the Federal Communications Commission to launch its new airborne Internet service. However, the project still faces delays because of recent decisions to pull out by the three U.S. airlines that were helping

to fund the effort.

The FCC last month gave Boeing the green light to operate up to 800 two-way broadband connectivity stations on its aircraft, provided the Chicago-based company can do so "without causing harmful interference to other allocated services" on the frequen-

cy bands that it plans to use.

Airplane passengers using the Connexion by Boeing service will be able to access the Internet and corporate intranets as well as e-mail while flying above U.S. territory and waters. Airlines will have to retrofit their planes with Ethernet-type wiring and phased-array antennas to offer the service, according to Boeing.

The FCC license "is a big momentum-builder for us in our effort to gain international regulatory approval" for the

service, a Boeing spokesman said. As part of the licensing process, the company tested a Boeing 737 to show that the technology won't interfere with other spectrum uses.

But Boeing still faces challenges in getting Connexion off the ground.

In late November, American Airlines Inc., Delta Air Lines Inc. and United Air Lines Inc. pulled out of the joint venture that was developing the service because they had all suffered financial blows in the

wake of the Sept. 11 terrorist attacks on the U.S.

German airline Deutsche Lufthansa AG is the only one teaming with Boeing on the project. The Boeing spokesman said Lufthansa plans to launch the Internet service on some of its planes late this year or in early 2003.

He added that American, Delta and United are still interested in the service and will participate in a series of meetings beginning this month to define how it should work. ■

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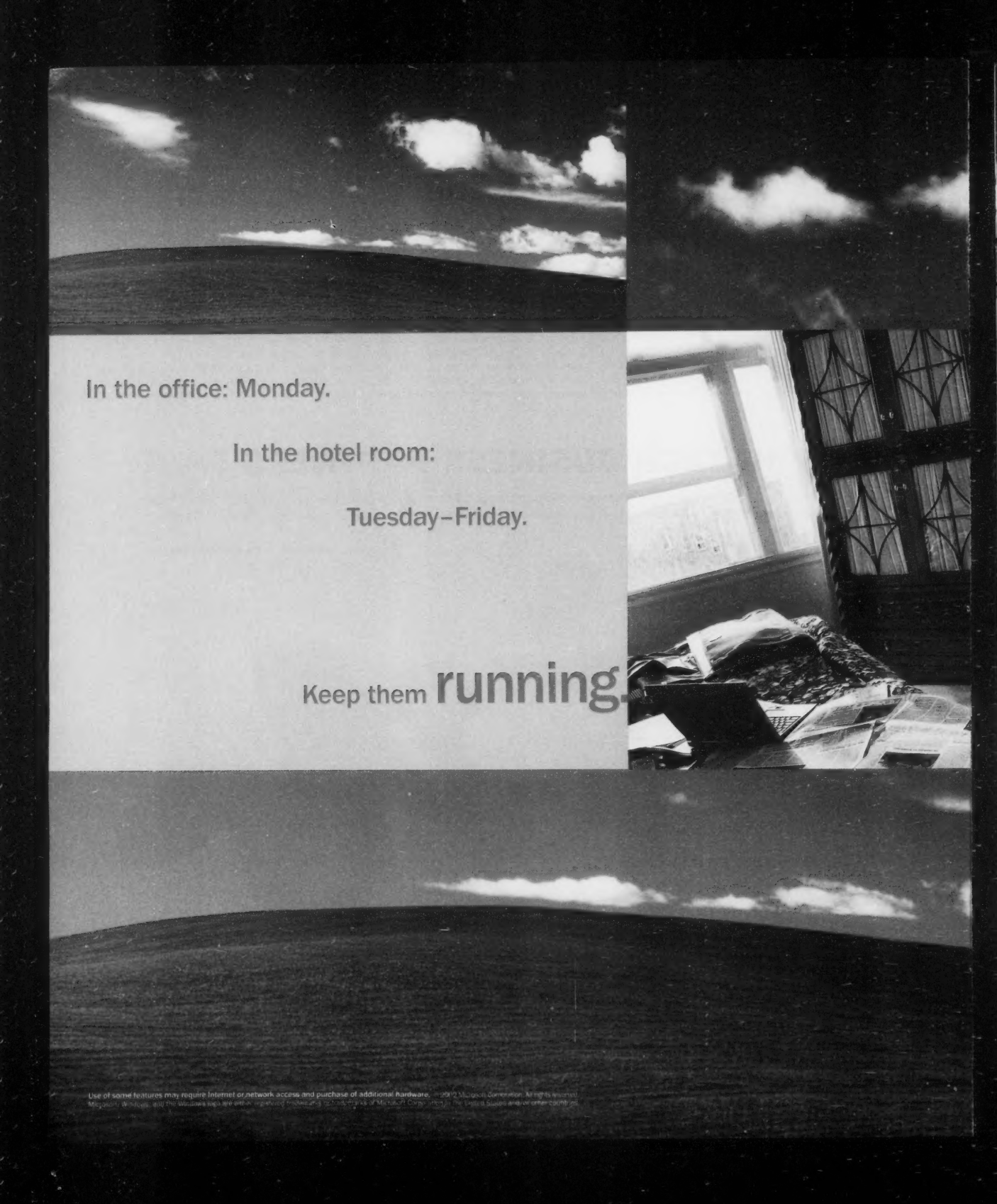
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BRIEFS

Lucent Sells Control Of Venture Group

Lucent Technologies Inc. said it has sold off majority ownership of its new-technology venture development unit to Collier Capital Ltd., a London-based firm that buys investment portfolios from companies that need cash. Collier now owns 80% of the networking vendor's venture group. Murray Hill, N.J.-based Lucent said it will retain a 20% limited partner's interest.

Symantec Names New President and COO

Security software vendor Symantec Corp. named former IBM executive John Schwarz as its president and chief operating officer (COO), with responsibility for product development, sales and technical support. Schwarz most recently was CEO of Reciprocal Inc., a defunct security start-up. At Cupertino, Calif.-based Symantec, he reports to Chairman and CEO John W. Thompson.

Be Weighs Lawsuit Against Microsoft

Menlo Park, Calif.-based Be Inc., which sold its multimedia operating system assets to Palm Inc. in Santa Clara, Calif., two months ago, said it's mulling the idea of filing an antitrust suit against Microsoft Corp. Be also announced the resignation of CEO Jean-Louis Gasse and said Dan Johnston, its general counsel, will act as president while the company winds down its operations.

Epicor Cuts Jobs Despite Better Sales

Epico Software Corp., an Irvine, Calif.-based maker of business applications, said its software license revenue for the fourth quarter of last year should be higher than expected. But Epicor added that it cut its workforce by 15% in an effort to help stem losses.

Oracle Moves to Lay Off Staff After Tough Quarter

Software vendor cutting up to 2% of its workforce as divisions get combined

BY MARC L. SONGINI

JUST THREE WEEKS after reporting the financial results for what CEO Larry Ellison called "our toughest quarter in a decade," Oracle Corp. disclosed plans to trim as many as 850 employees from its 42,000-person workforce.

Without releasing many specifics about the planned cutbacks, the software vendor last week issued a brief state-

ment saying that its workforce will be reduced by 1% to 2% early this year. Oracle explained the move by noting that it "is realigning certain areas to be more efficient."

The groups to be affected include the company's consulting and sales units as well as its vertical industry divisions for the government, education and health care markets.

As part of the restructuring, Oracle said, workers in those

Slippery Slope

Like other technology vendors, Oracle has been hit by a continuing drop-off in sales:

- The company **lowered its revenue and profit** outlooks after the Sept. 11 terrorist attacks and then reduced them again in November.
- Revenue in Oracle's second quarter ended Nov. 30 was **down 11% year to year**, with new software license sales falling by 27%.
- When the second-quarter numbers were released, Oracle forecast a small year-to-year revenue decline during its current quarter.

vertical industry operations have been folded into its North American sales force and consulting group. That move followed the late November de-

parture of the executive vice president who was running the vertical units and created redundant positions among employees with similar jobs, an Oracle spokeswoman said.

The exact number of layoffs that will take place remains unclear, the spokeswoman said, adding that the company plans "to, wherever possible, try and give people the option to find something else in Oracle."

The cutback follows a decline in both revenue and profits during Oracle's second quarter ended Nov. 30. The company in mid-December reported second-quarter revenue of \$2.4 billion, down from the year-earlier total of \$2.7 billion. Net income in the quarter fell from \$622.8 million to \$549 million (see chart).

The layoffs are the second round of job cuts made during the past 12 months by Oracle, which announced a similar 1% to 2% workforce reduction last March. Compared with the restructuring moves at many other top technology vendors, though, Oracle's cutbacks have been relatively small.

The new layoffs by Oracle appear to be part of the general slowdown in the technology business, said Peter Urban, an analyst at AMR Research Inc. in Boston. "Oracle has not hidden the fact that revenue growth has not been what it had planned," Urban said. "But it's not all Oracle's fault. A lot of it is economic." ■

HP Defends Compaq Deal As Proxy Fight Intensifies

Hewlett son seeks votes against plan

BY MATT BERGER AND STEPHEN LAWSON

Hewlett-Packard Co. again was forced to defend its plan to acquire Compaq Computer Corp. after dissident HP board member Walter Hewlett filed a proxy statement asking the company's shareholders to vote against the proposed deal.

In a response submitted to the U.S. Securities and Exchange Commission (SEC) late last month, HP reiterated its contention that acquiring Compaq "will accelerate our strategic transformation by years by bolstering all of our businesses, including enterprise computing, PCs, IT services and printing and imaging."

The company's latest salvo came just a day after Walter Hewlett and a trust that bears the name of his father, HP co-founder William R. Hewlett,

AT A GLANCE
Status Report

Details on where HP's proposed acquisition of Compaq stands:

- The two companies in September said that HP had agreed to buy Compaq in a stock-swap deal that would create a combined company with annual revenue of about \$87 billion.
- The merger was initially valued at \$25 billion. A decline in the price of HP's stock lowered that significantly, but as of Jan. 3 the value was \$24 billion.
- A proxy fight over the deal is expected at a special meeting of HP shareholders, with the heirs of the Hewlett and the Packard families leading efforts to block the merger.

painted the planned merger as a risky deal that would distract HP's management. The proxy statement filed with the SEC by Hewlett and the trust also claimed that the acquisition wouldn't improve HP's IT consulting capabilities or its competitive position in the mid-range and high-end server markets.

If the SEC approves the proxy filing, Walter Hewlett and other merger opponents will be able to distribute the statement to HP shareholders along with a card that they can use to vote against the deal at a special meeting expected to take place next month.

A Change of Heart

Walter Hewlett initially voted in favor of the acquisition along with the rest of HP's board. But in November, he recanted his vote and announced that he would launch a proxy fight against the merger of the two computing heavyweights.

Together, the Hewlett and Packard heirs control 18% of HP's stock — enough, analysts have said, to put the completion of the deal in jeopardy.

Some HP and Compaq users have said the uncertainty over the outcome of the merger is causing them to re-examine their relationships with the two vendors due to concerns about which products will be supported by the combined company, or by either HP or Compaq if the deal collapses. ■

Berger and Lawson are correspondents for the IDG News Service.

AGENDA INSIDE

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CIO
United Airlines



Tom Murphy
CIO
Royal Caribbean
Cruises



Curtis Robb
SVP & CIO
Delta Technology
unit of Delta Air Lines



Jean Holley
CIO
USG



Roger Gray
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Security

How much is really enough? Calibrating security needs against budget realities

CONFERENCE AGENDA

SUNDAY, MARCH 3

12:00 pm - 5:00 pm

GOLF OUTING

7:00 pm - 9:00 pm

PRE-CONFERENCE NETWORKING RECEPTION

MONDAY, MARCH 4

8:00 am - 8:15 am

WELCOME AND OPENING REMARKS



Maryfran Johnson, Editor in Chief, Computerworld

8:15 am - 9:00 am

KEYNOTE: CRAFTING IT STRATEGY IN CHAOTIC TIMES



Eric Bean, CIO, United Airlines

9:00 am - 10:00 am

PANEL DISCUSSION: LEARNING TO SUCCEED WITH PLAN B: IT LEADERSHIP IN CHALLENGING TIMES



Moderator: Pimm Fox, West Coast Bureau Chief, Computerworld

Uncertainty may just be the major guiding principle in the New Millennium of the IT economy. Yet IT Leaders must be ready to respond swiftly and confidently to every crisis - despite dwindling resources and shifting business fortunes. How do senior IT executives stay

focused on new priorities without sacrificing quality in tough economic times? How do they reinvent their IT mission and galvanize their staff for the next upswing in corporate fortunes? What are their prescriptions for a healthy IT enterprise? This panel will examine the way various leadership styles - from diplomat to innovator to strategist - have worked for some of the industry's most challenged by the economic downturn.

Panelists: Roger Gray, Vice President and CIO, Pacific Gas & Electric; Darryl Jones, President, Sentech LLC; Mike Rappas, CTO, Staples.com; John Fiere, Vice President and CIO, State Street Corporation

10:15 am - 11:00 am

INTERACTIVE Q&A: NEW THINKING ON AN OLD PROBLEM:

MANAGING VENDORS AND SUPPLIERS TO MAXIMUM ADVANTAGE

Moderator: Maryfran Johnson, Editor in Chief, Computerworld

The relationship between corporate users and their key vendors is often a strained affair, with distrust and disdain on both sides. Yet the need to deploy innovative, cost-effective technology solutions to specific business problems has never been more acute. How do you save your company money on an IT sourcing strategy that impresses the senior management team while preserving a good working relationship with vendors? Where do you find the levels of control negotiating expertise your organization needs? What are the most critical skills in managing ongoing supplier relationships? This interactive Q&A will explore and deliver on the front-line experience of a longtime senior executive consultant and a supplier management expert who comes from the CIO ranks.

Panelists: Theodore Wang, Chief Procurement and Finance, Seafair Associates; Bart Perkins, Managing Partner, Leverage Partners, Inc.

11:00 am - 12:30 pm

IT USER / IMPLEMENTER CASE STUDIES

12:30 pm - 1:30 pm

INTERACTIVE LUNCHEON

CONFERENCE AGENDA

1:30 pm - 2:30 pm

PANEL DISCUSSION: INFRASTRUCTURE: ALWAYS ON, ALWAYS UNDER FIRE



Moderator: Mark Hall, Editor at Large, Computerworld
Your infrastructure never sleeps, but it's keeping you up at night. That's because the Web is always on, open to users, customers and hackers, too. Your global organization never stops working either. Planned downtime is a luxury few can afford. Not long ago,

a few minutes of downtime was a user inconvenience. But now, the CFO is breathing down your neck about lost revenue opportunities. And the scope of your infrastructure keeps expanding beyond just wires and network gear. Today, it includes elaborate server storage systems, armies of PCs, wireless gadgets, data management and business intelligence software, complex directory services, vital security systems and encroaching technologies like Web services. Our expert panel of IT leaders will bring their hands-on experience to bear, suggesting strategies and (dare we say it) solutions to the source of so many IT headaches.

Panelists: Neil Johnson, Senior Vice President and CIO, BMC Software; Bob Palmer, Assistant Vice President, Commerce Technology, Lexis

2:30 pm - 3:00 pm

THE BUSINESS STRATEGY BEHIND DELTA'S IT INFRASTRUCTURE



Moderator: Curtis Rohb, Chief Technology Officer, Delta Technology
As the IT arm of \$16 billion Delta Air Lines, Inc., Delta Technology views its critical infrastructure through the lens of business as well as technology. The company strives to achieve balance between three key attributes: tracking total cost of ownership, finding "solutions that fix the problem," and accelerating time to market. In this talk, Delta's CTO will provide an in-depth look at how he supports a highly complex business driven by an infrastructure that manages 240,000 devices.

3:00 pm - 3:15 pm

BREAK

3:15 pm - 4:15 pm

PANEL DISCUSSION: THE HOLY GRAIL OF INTEGRATION: CRM MEETS THE SUPPLY CHAIN



Moderator: Cathy Helka, VP of IT, National Retail Federation

Connecting your customer-facing systems with your back office is an ongoing goal for many IT organizations, but extending that connection from CRM outward to your entire supply chain may just be the Holy Grail for the coming decade. What can go wrong? Everything from language and protocol conflicts to security breaches, data cleanliness concerns and the perennial lack of common standards across multiple platforms. Not on the brighter side, there are increasingly useful tools (including statistical analysis software that business people can actually use) emerging to help. This panel will explore the practical realities of collaborative planning and supply chain integration with the customer in mind.

Panelists: Roger Burnett, Vice President and CIO, Verizon Wireless; Jerry Klein, Director of Retail Business, Eastern Channel Co.

4:15 pm - 5:15 pm

PREMIER 100 "BEST IN CLASS" PROJECT WINNERS - CASE STUDY PRESENTATIONS



Moderator: Priscilla Tate, Executive Director, Technology Managers Forum

5:15 pm - 5:30 pm

CLOSING REMARKS

5:30 pm - 8:30 pm

EXPO OPEN, NETWORKING RECEPTION, BUFFET DINNER

7:30 pm

"BEST IN CLASS" AWARDS CEREMONY ON THE EXPO

TUESDAY, MARCH 5

8:00 am - 8:15 am

OPENING REMARKS

8:15 am - 9:00 am

OPENING KEYNOTE PRESENTATION

9:00 am - 10:00 am

PANEL DISCUSSION: REAL-WORLD ROI



Moderator: Julia King, National Correspondent, Computerworld

Even with IT budgets remaining flat or declining this year, IT Leaders are under escalating pressures to show impressive returns on IT investments - and to deliver them faster and earlier in the development cycle. Some are pushing IT spending decisions higher up the executive chain to better educate the business side about the strategic impact of technology. Others are dividing large initiatives into smaller projects that must show a positive ROI before moving forward with the next phase. What really works and what doesn't? What are some real-world metrics that will convince a skeptical board of directors to invest in an IT project? Panelists will discuss innovative tactics for projecting, tracking and reporting ROI in these double-edged sword times of keeping costs down while positioning their companies for better economic times ahead.

Panelists: Louis Giammusso, CIO, Harvard Pilgrim Health; Jess Healy, CIO, USAA; Cathy Nault, Senior Vice President and CIO, Inland; Ross Lambert, Director, Commerce, WESCO Distribution

10:00 am - 10:30 am

RIDING THE REALITY ROLLER COASTER



Tom Murphy, CIO, Royal Caribbean Cruises, Ltd.

Few industries were struck as swiftly and severely by the economic downturn as the travel and tourism sectors. For cruise line Royal Caribbean, the downturn meant shelving a \$180 million IT infrastructure project, laying off half its 400-member IT staff and putting CIO Tom Murphy's leadership skills to the ultimate test. In this compelling personal account, Murphy will talk about how his staff has retrenched and started focusing on the future.

10:30 am - 12:00 pm

IT USER / IMPLEMENTER CASE STUDIES

12:00 pm - 1:30 pm

EXPO OPEN, BUFFET LUNCHEON

1:30 pm - 2:30 pm

PANEL DISCUSSION: ENTERPRISE SECURITY - HOW MUCH IS REALLY ENOUGH?



Moderator: Eddie Schwartz, CISP, Senior VP, Guardent, Inc.

Despite the ongoing economic challenges, organizations continue to spend millions cleaning up the mess made by security breaches such as Code Red, Nimda and other attacks on the IT infrastructure. How much is enough for CIOs to spend assessing risk and making computer systems safe? How much is enough information to share about security breaches with partners, suppliers, the government or the public? Are the existing security certifications and standards really enough to lead to improvements in our risk posture? Our panel will bring to expertise to bear on these questions, providing senior executives with practical answers and useful ideas to take back to their own organizations.

Panelists: Howard Schwartz, Chief Security Officer, Microsoft Corp.;

Blair Lewis, Executive Vice President and CIO, WPI Inc.;

David C. John, First Vice President CIO, Thompson's Landmark

2:30 pm - 3:15 pm

PREMIER 100 "BEST IN CLASS" PROJECT WINNERS - CASE STUDY PRESENTATIONS

Moderator: Priscilla Tate, Executive Director, Technology Managers Forum

3:15 pm - 3:30 pm

BREAK

3:30 pm - 4:30 pm

PANEL DISCUSSION

4:30 pm - 5:15 pm

CLOSING KEYNOTE PRESENTATION: FUELING THE ENGINE OF CREATING IT AND BIOTECHNOLOGY



Andre Mendes, Chief Operating Officer, Pluvia Corporation

Beyond the enabling role of IT in corporate business is an accelerating journey of discovery fueled by scientific and technical advances. Particularly on the biotechnology frontier, IT is revolutionizing the way science and medical research is done. Andre Mendes, a 2001 Premier 100 honoree and former CIO of 616 Public Broadcasting System, has a front-row seat at the revolution from his business leadership role at biotech startup Pluvia Corp. He sees IT morphing from its infrastructure and connectivity roles into a powerful engine of creation with implications for technology executives across multiple industries. In this forward-looking presentation, he will describe a unified grand vision for IT's future and its far-reaching impacts on both business and society.

5:15 pm - 5:30 pm

CLOSING REMARKS AND CONFERENCE SUMMARY

7:00 pm - 7:30 pm

COCKTAIL RECEPTION

7:30 pm - 9:00 pm

GALA DINNER AND AWARDS CEREMONY



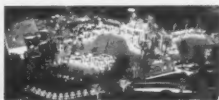
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- ☐ Food Industry
- ☐ Government / Military
- ☐ Healthcare / Medical Services
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- ☐ Automobile
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- ☐ Computers, Communications or Peripheral Equipment or Software
- ☐ Manufacturing
- ☐ Agriculture / Forestry / Fisheries
- ☐ Other

What is your primary job title / function? (Check one only)

- ☐ CIO, CTO
- ☐ General Manager, Vice President
- ☐ IS/IT Director, Manager, Supervisor
- ☐ Other IS/IT Manager
- ☐ CEO, COO, Chairman, President
- ☐ CFO, Controller, Treasurer
- ☐ Director
- ☐ Other Corporate/Business Manager
- ☐ Corporate/Business Staff
- ☐ Consultant

Which company is your organization's primary server vendor?

- ☐ Compaq
- ☐ Dell
- ☐ Hewlett-Packard
- ☐ Hitachi
- ☐ IBM
- ☐ Sun
- ☐ Other

What is your entire organization's IS/IT Budget?

- ☐ \$1 billion or over
- ☐ \$100 million - \$999.9 million
- ☐ \$10 million - \$99.9 million
- ☐ \$1 million - \$9.9 million
- ☐ Less than \$1 million
- ☐ None

What is your organization's primary server OS?

- ☐ Windows NT
- ☐ Windows 2000
- ☐ Sun Solaris
- ☐ IBM AIX
- ☐ Hewlett-Packard UX
- ☐ Novell Netware
- ☐ Unix
- ☐ Linux
- ☐ SCO
- ☐ Other

What is your personal IS/IT spending authority?

- ☐ \$5 million or over
- ☐ \$1 million - \$4.9 million
- ☐ \$500,000 - \$999,999
- ☐ \$100,000 - \$499,999
- ☐ Under \$100,000
- ☐ None

What is the total number of employees at all locations?

- ☐ 5,000 or over
- ☐ 1,000 - 4,999
- ☐ 500 - 999
- ☐ Under 500

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Bob Bickel, CTO, HP Middleware Division, Hewlett-Packard Company
Marge Broya, Vice President, Sun ONE, Sun Microsystems
Frank Campagnoni, CTO, GE Global eXchange Services
Dana Gardner, Research Director, Internet Infrastructure, Aberdeen Group
John Kunze, President and CEO, Plumtree Software
Jack Ozzie, Co-founder, Vice President of Development, Platform and Developer Services, Groove Networks
Marvin Richardson, CTO, Lante
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- Worlds Collide: Who Will Dominate Web Services?
- Understanding Web Services Development Standards
- Adapting Existing Applications to Become Web Services
- How to Deploy Web Services

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PATRICIA KEEFE

Santa's Little Hinderers

WELL, I TRIED. I REALLY DID. I was willing to invest the time, twiddle my thumbs while pages loaded, fill my cart and pony up the dough. Problem is, too many online retailers still aren't willing to spend the time, and lack the common sense, necessary to

get the customer experience right.

This remains true despite the barrage of uplifting holiday online shopping postmortems. Yes, more people than ever holiday-shopped online — 15% more than during last year's fourth quarter, according to researchers such as comScore Networks Inc. and Pew Internet & American Life Project. But that's only 1% to 2% of overall retail sales. Most sales still take place in traditional stores, in part because it remains too hard in many cases to spend online, forcing would-be buyers to instead surf and then drive.

Presumably, online merchants want customers to explore their sites — the more pages they click and the longer they stay, the more likely they are to fill up their shopping carts. This is a good thing. But not at sites like PotteryBarn.com, which proudly times out shopping carts "every 30 minutes." Or SmithandHawken.com, which takes great sport in sneaking up on unsuspecting shoppers and wiping out all traces of their fully loaded shopping carts. And StonewallKitchen.com won't



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handle more than five different addresses in a single order. Who needs positive cash flow and satisfied customers when you can ignite Web rage?

It's foolish to penalize anyone interested enough to spend an hour or more actually clicking through several categories of products. Treating shoppers like loiterers is a good way to guarantee short visits and canceled sales.

The problem is compounded by useless customer service. When shoppers run into problems online, they want answers — and soon. A Jupiter Media Metrix study released last week found that the number of sites that respond within two days has actually fallen, and as many as one-third take longer than three days or don't respond at all.

Despite our growing patronage of online shopping, analysts say Web retailers still lack adequate staff and technology, such as software that can help automate routing and responding to e-mail. This is folly. To capitalize on this growing wave of interest, invest today in your online business to improve the customer experience. ■

PIMM FOX

War Games IT Vendors Play

VENDORS OF solid-state flash memory tend to market it as being so rugged that it's used on battlefields. But the reality is more prosaic and nicely illustrates how best-of-breed IT systems don't automatically make sense, even when they can deliver impressive (and costly) performance gains.

The substantial price differential between storing data on a mechanical disk (cheap) and on silicon (expensive) is about 130 times. But even this hefty premium for solid-state memory is less than it was in the early 1990s.

Indeed, an abundance of solid-state flash memory on the market has helped usher in new uses. Medical applications now take advantage of flash memory's enhanced access capabilities to quickly see rich graphical displays. Network equipment makers also recognize the benefits of flash memory to speed data delivery, thereby relieving bandwidth constraints. But in both of these markets, the higher price for flash memory is more than balanced by the increase in performance these users demand.

Unfortunately, the same isn't true throughout the IT ecosystem. Vendors constantly tout new technology — wrapping it in marketingspeak designed to make potential users think they are one step removed from a Special Forces operation.

The very idea of "mission-critical" IT only serves to make us feel better about the IT fictions we tell ourselves. The serious intonations of IT vendors stroke our egos, while punching a hole in our balance sheets.

In the solid-state flash memory world, there are mission-critical situations in which drives can't fail. A PC aboard an unmanned submarine mapping deep-ocean currents without a tested, 100% reliable drive would be folly, just as using a gel-coated mechanical drive in a missile guidance system would likely not meet the rigorous requirements of the military.

Industries such as oil and gas, transportation, and manufacturing, in which severe vibration, extreme temperatures or physical abuse of equip-



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ment is routine, have logical and cost-conscious reasons for selecting disk drives from companies such as Livermore, Calif.-based Memtech SSD Corp. The U.S. Navy uses the company's solid-state drives in its new Virginia class of nuclear attack submarines and in the catapult systems aboard aircraft carriers.

IT vendors for too long have tried to tell users that their wares provide a cachet that's akin to what automakers use to proffer 4-wheel-drive SUVs to soccer moms whose daily adventure is driving to the supermarket. To borrow from the military lexicon, it's overkill and obscures real need and price assessments, projecting a false sense of who we are and what we do. ■

DAVID FOOTE

As 2002 Dawns, Job Market Has Some Bright Signs

SO YOU THINK the most influential stories on the current IT employment market are layoffs, spending cuts, hiring slowdowns, canceled projects and anal-retentive CFOs? Don't get me wrong — things are definitely tough. But it seems we're being spoon-fed a little too much gloom and doom.

There are plenty of other trends and new developments that translate into bona fide opportunities for any IT worker mapping out a new near-term job strategy. Let's start 2002 right by focusing on a few things that caught my attention in my company's latest research survey, involving nearly 2,000 employees.

■ **Networking jobs are earning more respect.** In spite of the recession, the e-business juggernaut continues to gain momentum, and networking-related jobs have benefited significantly. In fact, base pay for network engineering and operations professionals grew nearly 12% in 2001, well above the 7.4% average increase for IT. The following trend best underscores their elevated status: Not since Lotus Notes workers in the mid-'90s have I seen employers methodically shifting discretionary bonus pay into base salary for a particular group of IT workers. It's a rare and supreme vote of confidence — after all, unlike bonuses, base salaries are rarely reduced in a bad year — plus a



DAVID FOOTE is president and chief research officer at Foote Partners LLC, a management consultancy and IT workforce research firm in New Canaan, Conn. Contact him at dfoote@footepartners.com.

bold statement that certain IT jobs are worthy of more serious investment.

■ **Security is on the rise.** Many executives now rightly believe that high-profile Web attacks, electronic fraud and privacy breaches can seriously damage their companies' reputations and impact revenue generation. Our research indicates that only one in four companies has a dedicated security department, but this will soon change now that senior executives are playing more direct roles in setting policy and determining where and how to invest in protection. Technical skills in areas such as computer forensics, intrusion detection, firewalls, authentication/authorization and security auditing are in highest demand; our surveys indicate that premium bonus pay for security certifications has risen nearly 19% since the first quarter of 2001, while base pay for corporate security positions grew 10%. But many employers will covet the following qualities even more: a broad view of security; being adept at corporate politics; business knowledge, aptitude and skills; good relationship management, team and project skills; and the ability to market, sell and negotiate outcomes.

■ **Flexibility makes a difference.** Tight job markets favor those candidates with the fewest restrictions. Among industries, hiring in defense, pharmaceu-

ticals, hospitals and health care has been expanding. The latter two will spend billions to comply with new regulations for protecting the security and confidentiality of medical records, and that will require system upgrades to meet a 2003 deadline. Furthermore, Lockheed Martin recently won a government contract worth as much as \$200 billion to build warplanes, and recent terrorist events will stimulate development of weapons systems. Geographically, demand for all IT jobs has recently been highest in the Midwest and South and lowest in the Northeast and the San Francisco Bay area.

Finally, employers are eager to invest in improving customer relationships, reducing costs quickly and getting more from existing operations (as opposed to investments in innovative products, for example). Expect more probing about your experience in several areas, but especially in risk management, benchmarking/metrics, project management, return on investment, negotiation, outsourcing and supply chain management.

Actors are admonished not to read media coverage about themselves lest they begin believing it. This also applies to IT workers, who will find payoffs this year for astute analysis, flexibility and unwavering optimism about their job options. ■

READERS' LETTERS

It's a Love-Hate Thing

THE ARTICLE "Microsoft to Wind Down Support for Windows NT 4.0" [News, Dec. 17] sounds like another advertisement for Microsoft or, at the very least, marketing spin. Most of the networks I know about are still using NT 4. They have some Windows 2000, and about 30% are moving toward Active Directory. Most want to continue with what they have (a stable network that satisfies their needs). None plans to move to .Net. Microsoft is determining what's good for us, and you're supporting that effort.

Paul V. Akin
CEO/general manager
ANet Consulting
Santa Rosa, Calif.

AS A REGULAR reader, I put up with the anti-Microsoft bias of your publication

because of your above-average, broad coverage of the technology world. Dan Gillmor's "Has the Door Widened for Linux" piece in the Dec. 17 issue, however, is offensive to me and demands a reasoned response [News Opinion]. Phrases such as "Microsoft's insatiable appetite for domination," "paying tribute," "squash would-be competitors" and "Microsoft's desire to squeeze money out of its customers" are blatant hyperbole that seeks to arouse, not inform. What does Gillmor believe Sun's or Oracle's or Red Hat's business objectives to be? Give money away? Work toward strengthening competitors' financial positions? I'm not sure if your publication is intended to be essentially nonpartisan, but if so, you do a terrible job of offering any viewpoint other than the typical "evil empire" portrayal of

Microsoft, ignoring the often similar or more egregious behavior of competitors and the fact that the profit motive is king on the campuses of Sun, IBM, Oracle, Red Hat, etc., just as it is at Microsoft. I would greatly appreciate a more balanced presentation of Microsoft and the industry as a whole. Please note that the above comments are solely my own and that I in no way represent Microsoft.

Paul Rich
Senior technologyologist
Microsoft Corp.
Seattle

Be More Positive

"THE IT BUDGET Squeeze" [Business ROI, Dec. 10] states that technology budgets at 68% of companies you surveyed are expected to shrink or stay flat. But in the accompanying chart, the percentage of those that plan to

increase spending is actually 29% vs. 25% for shrinking. One could argue that it would be a bit more accurate if you stated that technology budgets at 72% of the companies are expected to stay the same or increase for 2002. Not only is this a bit more accurate, it's a whole lot more positive.

Ron Gilbert
President
RPR Wyatt Inc.
Phoenix

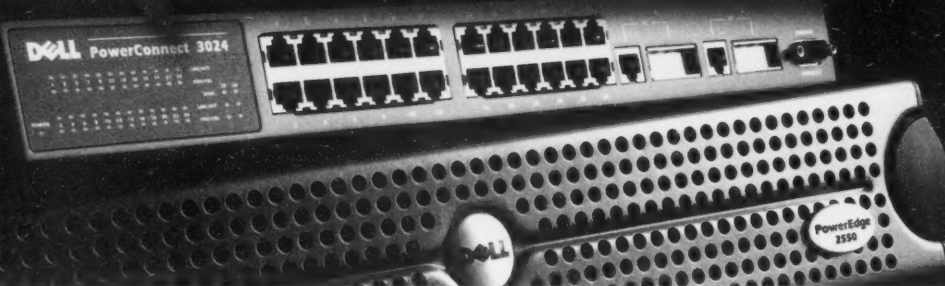
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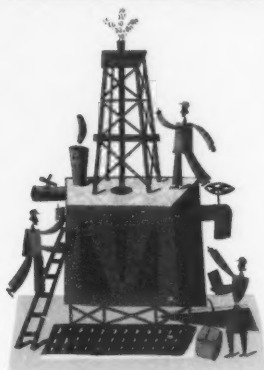
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BUSINESS

THIS WEEK



REAL OPTIONS

Real options reasoning, a methodology popularized by the oil and gas industry to determine how much capital to commit to emerging energy fields, could be used to evaluate IT investments, experts say. **PAGE 28**

LABOR MARKET BLUES

Some say the IT job market is the worst they've seen in a decade. Others say it's the worst ever. Either way, IT leaders need to rethink their hiring practices to reflect a dramatically changed labor market and economy. **PAGE 32**

SPINNING THE CUSTOMER'S INPUT

Many companies that claim to be customer-centric make the mistake of doing what their customers ask for, not what they really need, contends Anthony Ulwick in this month's *Harvard Business Review*. **PAGE 34**

CAREER ADVISER

Fran Quittel offers advice to a laid-off business analyst who is considering returning to college. **PAGE 38**

PAUL A. STRASSMANN

The 'Right' Spending

IN 1986, GENERAL MOTORS' top management became alarmed about escalating IT costs. To benchmark IT spending against Ford, GM hired me as a consultant to deliver an IT-to-revenue ratio comparable to Ford's, whose IT budget was reportedly smaller than GM's. It took me a while to convince GM that overall revenue wasn't a

reliable basis for reaching valid conclusions as to whether GM was overspending or underspending on IT compared with Ford. In those days, Ford, with less revenue, was outsourcing more of its production costs than GM was. Therefore, Ford would theoretically require fewer employees to make a car and consume fewer IT resources to support its workforce. After adjusting for each company's employment, salaries, the amount of outsourcing and total assets under management, I delivered a report that was used to realign some of GM's IT spending.

During the current economic downturn and IT budget crunch, some executive will likely come up with a consultant's average IT-to-revenue ratio for your industry, then ask you to match it. In the chart below, I have included numbers from the year 2000 for Ford and GM to illustrate how you might want to deal with such a simplistic challenge.

As the chart shows, Ford's and GM's revenues and employment are alike, and therefore, their IT spending should be close if you apply either a revenue- or spending-per-employee ratio. But their IT budgets are different because their financial and employment structures are different. GM's estimated IT expenditures are approximately twice those of Ford's!

In 2000, GM purchased a larger share of its sub-assemblies, parts, components and IT than Ford did. Therefore, GM ought to employ fewer IT resources to manage operations. But that didn't happen because GM's estimated information costs — such as sales, general and administrative expenses — relative to its costs of goods sold are much larger than Ford's. This difference is important because IT budgets can be best explained not by corporate revenues but by other factors, such as total information costs (which include IT spending), plus the salaries of all IT users. Information costs include the purchase of services from consultants, outsourcing contractors, advertising agencies, law firms and accountants to support

the internal information workforce. GM's presumed advantage from its greater reliance on outsourcing is overwhelmed by a larger information workforce that almost certainly will generate more demand for IT.

There are other indicators to consider. For instance, what are the differences in growth rates? Here, GM is at a disadvantage. Ford's 1991-2000 revenue growth was twice that of GM's, but Ford's information cost to value-added ratio remained level, while GM's grew 34%. What matters is the difference in profits. As the chart shows, the automakers reported starkly different profits over a decade.

Taking into account all the relevant financial indicators, GM's much higher IT spending is about what I would expect. What is, then, the "right" IT budget for GM, or any corporation? That can't be answered by having GM match Ford's spending. The answer is to define a corporate structure that delivers superior profits, then realigning IT spending to support that. **Implications:** CIOs will be pressed to produce credible benchmarks to prove that IT costs are either in line with or lower than those of competitors. The "expected" level of IT expenditures is determined by factors such as the ratio of information workers to the total workforce; the composition of the information workforce (such as clerical vs. professional workers); growth in corporate profits; dependency on purchases from suppliers; the value of assets under management; and the number of PC users supported. The "right" IT budget, then, is one that's less than those of your chief competitors, while your firm delivers superior shareholder returns. ■

Strassmann has had to defend IT budgets many times in his career. Contact him at paul@strassmann.com.

Ford vs. GM: In 2000, here's how much Ford and GM spent on IT relative to revenue. Also shown are profits the automakers reaped from 1991 through 2000.

	Revenues (in millions of dollars)	Employees (in thousands)	Purchases as percentage of revenue	Information costs as percentage of cost of goods sold	Total profits from 1991 to 2000 (in millions of dollars)
FORD	\$170,064	346	64.4%	5.8%	\$46,474
GM	\$178,763	357	73.7%	12.5%	\$11,367



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Real options reasoning, a methodology used by the oil and gas industry to predict investments in capital equipment, can identify unseen returns on IT investments, experts contend.

By Peter Buxbaum

Tapping In Real Options

EVEN BEFORE THE JOLT of the Sept. 11 terrorist attacks, the U.S. economy was on shaky ground. An impending recession and rigorous budgeting led many IT managers to seek focused IT projects offering quick returns on investment. Was that a reasonable strategy? Not necessarily.

We live in a world of uncertainty. IT professionals have been living facing quandaries for some time. What e-business initiatives should be pursued? What's the next killer app? The answers to such questions are anything but sure bets.

Oil and gas developers also routinely make multimillion-dollar decisions in a fog of ambiguity. In an effort to make the best choices possible under the circumstances, energy analysts often use a methodology called real options reasoning. They advise, for example, on the value of alternatives to drilling whole hog into an oil reservoir of unknown capacity by evaluating options such as spending more on preliminary seismic studies.

Some experts say the same approach should be applied to IT investments.

"In the old world, IT investments improved existing operations, and its success was tied to achieving a particular business outcome," says Martha Amram, interim CEO of Vocom Software Corp. in Cupertino, Calif., and a writer on the subject of real options. "ROI and other traditional valuation approaches did just fine back then."

But ROI can be misleading when IT is being implemented strategically, rather than for incremental improvement. Sam Israelit, manager at consultancy Bain & Co.'s Boston office, tells of a client in the energy sector that balked at a major enterprise software investment when it appeared that the anticipated

DEFINITION

REAL OPTIONS is a systematic and integrated decision analysis process that centers on real (nonfinancial) assets: Make a capital investment today to create an opportunity in the future. Real options enable the owner to benefit from the upside potential of an opportunity while controlling the downside risk. It's "real" because you're investing in operating capital instead of financial capital. It's an "option" because you're investing in the right, but not the obligation, to invest.

Much like IT infrastructure investments, a real options opportunity will pay off if market conditions are favorable. If the investment results in a loss, the loss is limited to the initial investment.

benefits were far off. The client used real options to break the project down into three phases.

"That way, they were able to learn about the application and give some thought about how to use it more effectively," he says. "This approach brought about benefits early on in the project."

For instance, end users at the energy firm had to determine the likelihood of achieving the benefits they expected from the application. "Going through this process forced them to think specifically about what they have to do to reach those benefits," says Israelit. "The net result was that they were better prepared to implement the change management needed for a successful implementation."

Through real options, Israelit's client was also able to identify the riskiest aspects of the project. "They put additional emphasis on mitigating the risks in those areas," he explains. "They also thought through the phasing of different project components so that they could start to achieve the lower-risk returns earlier in the project and smooth the overall risk over the life of the project."

The real options response to uncertainty, then, is flexibility. Just as financial options seek to hedge the risk associated with trading securities, real options attempt to mitigate the risk associated with deploying business assets.



RICHARD TALASH

nto ons

The trick is not to bet the company on a risky strategy nor to walk away from uncertain opportunities that could pay big dividends. "The first principle is to postpone any investment that would expose the company to an irreversible downside," says Rita McGrath, an associate professor at Columbia Business School in New York. "Break the project up into milestones and commit resources sequentially."

Step by Step

Characteristic of real options strategies is a step-by-step approach, in which small investments are made for specific purposes. If the desired outcome is achieved, the project manager has the option of going forward. If the results are disappointing, the manager walks away, having lost only the initial investment. Either way, the lessons drawn from the project are a win for the company.

Take, for example, an investment in a new IT ar-

chitecture. The CIO will doubtless have to explain to the chief financial officer how the benefits outweigh the costs. "Traditional analyses often break down when the return is cashless," says Johnathan Mun, director of corporate finance at Decisioneering Inc., a Denver-based software development firm that's working on incorporating real options into its decision analysis packages.

"Increased efficiency and lowered costs in office operations or the IT department can be debatable," says Mun. "The real value may come down the road if the company exercises options to implement collaboration or e-commerce modules. The strategic value is likely to be high and the costs to deploy those latter phases relatively low."

Under a real options approach, it wouldn't make much sense to develop a full-blown IT architecture that couldn't be tested until the whole thing was built. On the other hand, it might be wise to pay more upfront for a reusable modular platform as opposed to paying less for a system that would benefit from just one business process.

"You need to plan for a passing lane, in case you need to speed things up, and an exit ramp, in case you need to get off," says Adam Borison, who until recently ran the real options practice at PricewaterhouseCoopers in New York. "And you also need a process on the back end to enforce this discipline."

Practitioners manage bundles of options like investment portfolios. "The question is, how is the value of the portfolio influenced by the staging and sequencing of projects?" says McGrath.

Israelit says he believes that CIOs should learn to present their proposals in just such a light. "Rigorous analytical thinking is more critical than ever to get through these turbulent times," he says. ▀

Buxbaum is a freelance writer in Elizabeth, N.J. Contact him at Pab001@aol.com.

The Accidental Real Optionist

One of industry's leading real options practitioners came upon the methodology accidentally.

"We thought we were practicing supply chain management," says Corey Billington, vice president for supply chain services at Hewlett-Packard Co. "Then some academic type told us our methods were examples of real options in practice."

What caught the professor's eye was HP's management of its Deskjet printer supply chain. As early as 1991, HP was using real options analysis to postpone finalization of the manufacturing process, such as localization for individual markets, in a move that saves the company \$72 million a year.

"It costs more to do this on per-unit basis," says Billington, "but we eliminate the uncertainty of what the French vs. German demand might be." HP pays a 1% premium in design and materials costs for the option of postponing differentiation, but the payoff comes in 5% to 7% savings in inventory costs.

Getsupply, HP's private Web-based procurement hub, represents another step in the company's real options strategy. Getsupply provides HP with end-to-end supply chain visibility, a tool that enables HP to multiply its options by leveraging forward and spot markets. "You need that kind of visibility to move risk around the supply chain," says Billington. "If we bear

the risk, we will want a price concession in exchange for a fixed commitment."

Drilling deeper into the supply network will also enable HP to create markets for surplus inventory. For example, the company may exercise an option to order more supplies than indicated by forecast, provided it can get rid of the excess on the spot market. But that degree of flexibility isn't available at every level of the supply chain.

"Instead of making a market for Deskjet housings, which has no fungibility, we would seek to create a market for the plastic pellets that go into them," says Billington.



HP's Corey Billington

Further off in the future is a marketplace that would allocate supply chain risk through tradeable options instruments. Presently being developed by the Peabody, Mass.-based electronics online marketplace Converge Inc., the future exchange could auction and trade capacity much as electric utilities do now, Billington says.

In the meantime, HP continues to optionize its supply chain with homegrown systems as well as with software from Vivecon Corp., a Mountain View, Calif.-based start-up founded by Stanford University professor Blake Johnson.

- Peter Buxbaum

Potential Applications For Real Options

ENERGY EXPLORATION. Decision-makers must consider whether to continue exploration or begin development, size production facilities before productivity of a field is known and figure out the value of leases.

UTILITIES. Deregulation and the unbundling of generation, transmission and distribution assets lead to company decisions on whether to shut down or start up, construct or sell generation facilities, or enter or exit operations in certain geographic markets.

TELECOMMUNICATIONS. Companies confront choices of optimal bandwidth construction and utilization, alliances whose benefit streams are uncertain, and technologies with unproven market demand, all under conditions of regulatory, market and technical uncertainty and heavy demands on capital.

PHARMACEUTICALS. Decision-makers grapple with whether to go forward with stages of risky drug developments, how much to pay for uncertain technologies and whether to accelerate development to be first to market.

ENTERTAINMENT. TV programmers option prime broadcasting slots, reruns and sequels for high-performing shows to significantly increase the value of a program's life cycle. Should an underperforming show be switched or killed? *Seinfeld* was a dud its first two seasons until it was moved to Thursday nights.

SOURCES: REAL OPTIONS SOFTWARE INC., DALLAS; MCKINSEY & CO., NEW YORK

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For a bibliography of related articles on real options reasoning, go to:
www.computerworld.com/q?25894

IT jobs will continue to be professionally and financially rewarding in 2002, just not for as many people. By Matt Hamblen

AFTER CHUGGING ALONG through the late 1990s, the job market came to a screeching halt last year, throwing many people off. For at least the first half of 2002, those bruised and battered workers will have a hard time climbing back on board the job train.

Take the skilled IT worker who left a clothing retailer two years ago to set up shop as an IT consultant.

"He had worked for a competitor before going off on his own but showed up at our door recently saying [that] if we would pick up expenses, he'd work for free," recalls Jon Dell'Antonia, vice president of MIS at OshKosh B'Gosh Inc. in Oshkosh, Wis. "Talk about a sign of the times."

And the times certainly are a-changing. With the nation and much of the world in a major recession, 2002 looks to be a time defined by more layoffs, including cuts in IT. If you're among the ranks of the unemployed, finding a new job will continue to be a major challenge.

Forget seeing a turnaround soon. Rather than job growth or even job stability, fewer IT jobs will be available, employment experts believe, as many companies reduce their IT departments even further through more layoffs or attrition.

Granted, the picture won't be entirely dismal. There will be a premium on IT security professionals, for example. But employers are putting job seekers on notice: In these tight times, they expect real bang for their buck. The pressure will really be on IT employees to improve performance. And while you keep one eye on your job, network with others in the industry and stay on the lookout for IT jobs in related in-

dustries, should a layoff occur.

When the dot-coms exploded in 1999, many people left stable IT jobs. "And where are they today?" Dell'Antonia muses. "Some are wishing they were back, but a lot of people don't have the opportunity to go back."

Stable Salaries

The recession has obviously hurt the IT job market, Dell'Antonia says, but the impact on IT jobs in the apparel business, specifically, is a

"mixed bag." OshKosh expects to do OK in 2002, he says, partly because the clothier's business is half retail and half wholesale.

"In the third quarter of 2001, we were having a really good year," Dell'Antonia notes.

Fortunately, IT professionals can look forward to retaining their salary levels in 2002: Salaries for most job titles in IT will increase by approximately 4% on average, according to surveys and top-level IT managers at several companies. But gone are the days of double-digit pay increases, hiring bonuses and full benefits slates. Training budgets are also likely to remain flat.

While the news focuses on layoffs, job seekers can't afford to be deterred, says John Madigan, vice president of

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NETWORKING IS THE KEY to finding a job in today's economy, says Len Tenner, CIO emeritus at Hewitt Associates.

GREAT WORK, IF YOU CAN GET IT

“

Most firms, even those experiencing layoffs, will still need good people in key areas. Target good, solid firms... that are likely to be around providing jobs in the future.

JOHN MADIGAN, VICE PRESIDENT OF
CORPORATE HUMAN RESOURCES,
THE HARTFORD FINANCIAL
SERVICES GROUP

corporate human resources at The Hartford Financial Services Group Inc. Madigan helps coordinate hiring for an IT staff of 3,500. The Hartford, Conn.-based company currently has 60 IT job vacancies — half the number of openings it had a year ago. Madigan says some previous job vacancies were reduced through attrition, and recruiting was much easier in 2001 than in previous years.

Key Skills in Demand

"There's a much more rigorous approval process for filling jobs," Madigan says. "But here's an inside tip for job seekers: Most firms, even those experiencing layoffs, will still need good people in key areas. It's best to target good, solid firms... that are likely to be around providing jobs in the future."

Officials at Bethesda, Md.-based Marriott International Inc., which was hit hard economically by the Sept. 11 terrorist attacks, say IT hiring will be diminished compared with levels of several months ago. But they declined to be more specific.

However, Marriott will be hiring people to fill jobs involving enterprise applications, Internet programming, project management and senior leadership, according to George Hall, vice president of human resources for IT. And Marriott plans to continue to provide IT workers with mission-critical training and competitive compensation.

"Certain skills are still highly valuable and recruited," says Hall. Still, he warns

that job seekers "should be more flexible and be willing to take on unusual assignments that support a company's short-term business needs in this changing economy.... Given that demand is not as great, employers can be more selective and will want to see stability as well as skills in their recruits."

Several managers say IT job seekers haven't reached the level of desperation that they experienced in the 1980s.

However, Len Tenner, CIO emeritus at Hewitt Associates LLC, a human resources outsourcing in Lincolnshire, Ill., says he has worked in IT since 1961 and has not seen a "more confused time."

"We have a weak economy, terrorism, the burst of the dot-com bubble and the Internet infrastructure bubble, and new technologies that are not well understood — all at the same time," says Tenner. "That is unprecedented in my lifetime."

To overcome the general uncertainty and the doom and gloom that accompanied the latest unemployment statistics, Tenner recommends that job candidates focus on the things they can control, such as getting training in hot areas.

Increasingly, training is being offered at regional sites to cut down on travel costs, and many classes are being offered over shorter time periods to make them more convenient and less expensive.

Many technology associations offer one- or two-day seminars for nominal fees, says Lily Shue, information systems manager at Sony Electronics Inc. in Park Ridge, N.J., and chairwoman of the Rolling Meadows, Ill.-based Information Systems Audit and Control Association and Foundation.

Shue says candidates need to pay constant attention to the news monitor business and technology trends. And job seekers should keep their eyes open to new opportunities, perhaps in different industries than the ones they're used to.

Patience a Virtue

The year ahead may be a long one for job seekers, some staffing consultants predict, especially if the recession gets worse.

"Patience is required, as the pace of employer decisions will be slow," Tenner says.

The time required to get hired at a job paying more than \$100,000 could be more than a year, compared with six to nine months required two years ago, says Marc Lewis, managing director of IT hiring at Christian & Timbers, an employment firm in Stamford, Conn.

Everyone — from managers to recruiters — stresses the value of networking, for job seekers and for employed IT workers alike. "Personal networking is key and may be the most important route to placement," Tenner says.

Employment seekers may have to adopt a different mind-set when seeking work in 2002, advises Jerry B. Hale, director of global business systems at Kingsport, Tenn.-based Eastman Chemical Co.

"Job seekers can expect companies to have a lot higher expectations now, and companies will be much less tolerant of poor performance," Hale says.

Making the Best of a Bad Job Market

Hiring consultants, analysts and IT managers offer the following tips on managing your career during the recession:

1 STAY PUT

First, and most obvious, it's best not to leave your present job for the time being, unless you're forced to.

"This recession can last for a long time," says Fran Quittel, a staffing consultant at Frances Quittel Inc. in Emeryville, Calif., and *Computerworld's* Career Adviser columnist.

"I hate to say this, but if there's another terrorist incident, it could make the recession last longer. There's a lot of mental stuff in this job market, just like the boom in dot-com was mental the other way," Quittel says.

2 GET TRAINING

Consider getting training or certification in some of the hotter job categories in IT, including security and disaster recovery. These are areas where salaries are showing the best increases and where there's a clear need for hiring this year.

Regarding security, IT managers "are hiring security-skilled systems admins as fast as they can" but showing less mercy with pure managers who can't provide technical savvy, says Alan Paller, director of research at the SANS Institute in Bethesda, Md.

Paller recalls one example in which a chief information security officer was told he was being fired because he couldn't handle a firewall.

David Foote, an analyst at Foote Partners LLC in New Canaan, Conn., says that security jobs will be most in demand starting in the third quarter, when companies will begin to realize the valuable role security plays in attracting customers.

It will be technologists in security, as well

"Business skills and accountability and a desire to align the business will be important in the future."

And if you think all is forgiven in IT when it comes to recent job-hopping, think again. Employers will take a more skeptical view of job-hoppers, whom they associate with higher training costs, says Jon Ricker, president and CIO of Limited Technology Services, part of retailer The Limited Inc. in Columbus, Ohio.

Ricker also urges IT workers to build up so-called soft business skills now to enhance their future marketability by accepting assignments that involve communication and consulting skills. ■

as business managers, who see the critical value of security, says Foote, who is also a *Computerworld* columnist.

In addition, he predicts an uptick in network and enterprise data services jobs.

3 REACH OUT

Network, stay in touch, and stay flexible.

Katherine Spencer Lee, executive director of RHI Consulting in Menlo Park, Calif., says the current recession isn't as tough as that of the 1980s, when job candidates would try to offer her money under the table in return for priority consideration in job placements.

"The economy is as bad as you make it, but every single day, you have to keep reading what's happening in the news and how that impacts technology. Keep your skill set hot and current," she says.

Lee and Quittel point to the possibility of changing industries to find work.

"Think about how well the mortgage companies are doing now," Lee says. She also urges IT workers to look at the biotechnology and health care fields. In those markets, the work ranges from cloning and the creation of human skin to the development of pharmaceuticals and the implementation of new government health standards.

To illustrate the importance of staying flexible and keeping an open mind, Quittel recalls one IT worker who was laid off from a software company in Silicon Valley and sent out 500 résumés. Almost every day, on the way to job interviews, she drove past a community college.

"One day she said to herself, 'Gee, I'd like to work there,' and got a top IT job," Quittel says. "The lesson is that she had an idea outside what was a normal commercial-sector job."

— Matt Hamblen

Some say the IT job market is the worst it's been in a decade. Others say it's worse than ever. In either case, IT pros should brace for more bad tidings in 2002. **By Lee Copeland**

JERRY LESLIE GOT HIS PINK SLIP in August. And after being downsized from a start-up technology integrator five months ago, this unemployed systems administrator says new job opportunities aren't just slim, they're razor thin.

"This is the worst job market I've ever seen," says Leslie, who's based in Bellaire, Texas, and has 18 years of systems administration experience under his belt. "It's very unusual, especially

for the IT industry. But it's not just IT. I've never seen this many layoffs before," he says.

Budget cutbacks. Staff layoffs. Project slowdowns. None of this is unheard of in IT. But few, if any, have seen anything like now.

"Everybody who has been around for a long time will tell you that it's not been like this before," says Eric Dean, CIO at United Air Lines Inc., a unit of Elk Grove Township, Ill.-based UAL Corp. "The airline industry goes through contractions and expansions every seven years, but this is on a scale that's never been seen before."

The turbulent economic climate, coupled with the disruptive wake of September's terrorist attacks, is prompting IT leaders to rethink hiring practices to reflect a dramatically different labor market and economy.

The labor market is bloated with tal-

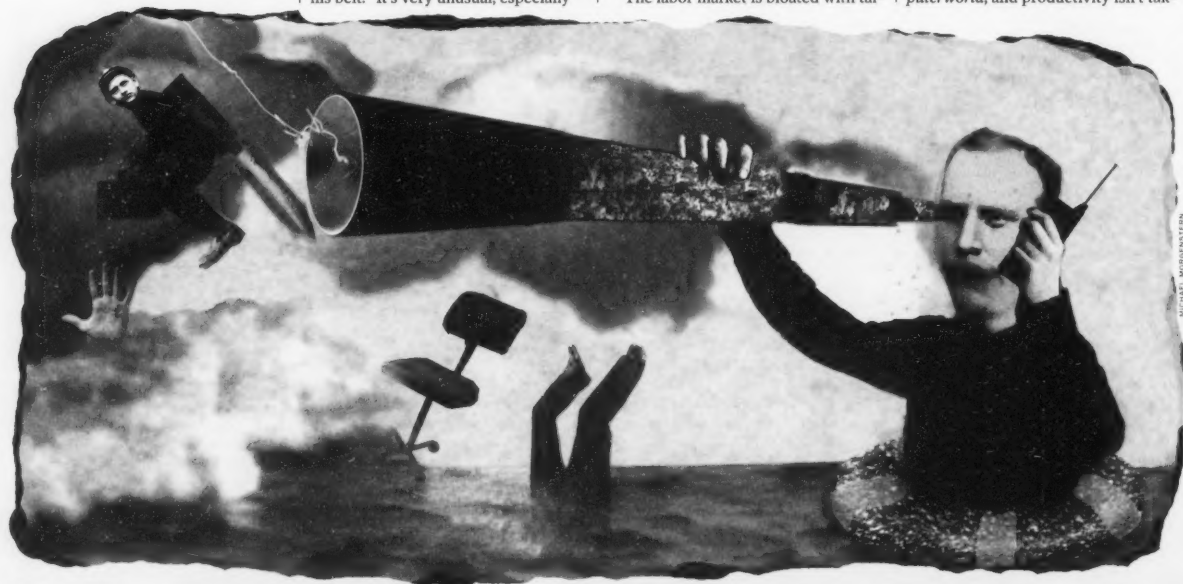
ented, laid-off workers, and the economy is still limping through a recession. That unsavory combination is prompting many firms to renege on year-end bonuses and cut back on corporate

perks such as training and testing new technology, while IT resources and spending get reprioritized around projects that promise an immediate return on investment.

"Our bonus has been reduced this year," acknowledges Ed Bell, CIO at Commonwealth Financial Network. At the Waltham, Mass.-based investment brokerage firm, the bonus pool stems from a calculation of the company's revenue, income and customer growth. Since those numbers are down, the amount that managers have to offer their staffs has decreased.

Now for the goods news: The time was right for a change, CIOs tell *Computerworld*, and productivity isn't tak-

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IS THE WORST YE

ing a major hit. Even companies whose IT budgets have been marred with red slashes are still finding ways to reward and invest in their best workers.

At Commonwealth Financial, for example, Bell says he'll find room in his budget to reward the top performers. "For the stars, I will do everything I can to compensate them," he says. But poor performers won't be getting star treatment.

"When there was a hiring frenzy, you weren't able to spend the time looking at the individual's contribution," says Bell, who uses the evaluation system promoted by Jack Welch, the legendary former CEO of General Electric Co. Under Welch's system, Bell assumes that 20% of workers are his top performers, 70% do a good job, and the bottom 10% require an evaluation of their contribution.

Like many CIOs, Mark Westling, CIO at National Pen Corp., a maker of promotional products in San Diego, says he believes the downturn presents an excellent opportunity to revisit priorities and refocus the staffers who implement those objectives.

"In prosperous times, there's little incentive to making tough choices," he says. "During difficult times, there's more incentive to make choices about the highest return projects, and that provides a real air of relief in the IT ranks because they know they're making a valued contribution."

For example, National Pen has refocused resources toward completing an order entry application built with software by Oracle Corp. That application aims to reduce the time required to process an order from 12 minutes to between three and six minutes. "We process a million orders per year, so it could offer a significant reduction in labor costs if we cut the time by one half or one quarter," says Westling.

United laid off 20% of its employees — nearly 20,000 workers — in the fall. That deep cut included 30%, or approximately 600 employees, of the Chicago-based airline's IT staffers.

By decreasing the amount of appli-

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Quite candidly, a lot of folks are very thankful that they have a job in these difficult times.

MARK WESTLING, CIO,
NATIONAL PEN CORP.

cation change orders that the IT department processes by 90%, United was able to reprioritize its downsized development staff to high-priority projects, such as the revised reservations system it launched in November.

Traditional carrots and perks, such as bonuses and company-sponsored extracurricular events, may be gone, but CIOs report that they aren't hearing complaints and that they aren't waving a big stick.

"One cold, sobering reality — that's not a motivator for employees, but something to keep in mind — is the 'I'm thankful that I have a job' factor," says Westling. "Quite candidly, a lot of folks are very thankful that they have a job in these difficult times."

At United, IT workers won't get their typical year-end bonuses, but Dean says he doesn't expect cost cuts to have a negative effect on morale. "Everybody in the company understands that this is a very unusual time, which calls for very unusual measures," he says.

Bell says he expects a demand for infrastructure and networking skills this year, but he advises job seekers to pay attention to project management capabilities and the capacity to understand how technology impacts the business.

"There are a lot of workers who are

technically superior, but their contribution to the business isn't as high as those who understand it," he explains.

"Having certification in a technology" used to get workers a job, says Parvez Erani, vice president of information management at St. Mary Medical Center in Long Beach, Calif. "But these days, there are people with years of experience without work. You have to do more than pass a certification test. You have to have real work experience."

Erani also says that management is no longer willing to pay headhunters to find qualified candidates, as résumés flood in over the transom. Consequently, networking is providing one of the best means for job seekers to learn of new opportunities.

Steve Finnerty, CIO at Northfield, Ill.-based Kraft Foods Inc., adds that membership in professional organizations can improve a candidate's chances of landing a job for two reasons: Being a member can help establish a network of contacts, and through that network, a candidate can better his knowledge about how technology projects are being vetted.

"I don't know how someone can find a job without networking," he says.

Leslie, who has been searching for work since he was laid off Aug. 15, couldn't agree more.

"There are some jobs out there," he says, "but people are finding them through personal networking, and not through the Internet or headhunters."

When a position becomes available, Maribeth Ward, vice president of IT at Chicago-based Parson Group LLC, says the ideal job candidates are "utility infielders" who can be tapped for a variety of tasks, rather than sticking to one project area.

The utility infielder is "important with the economy being down and business flat," says Ward. "Since we're not hiring new staff, it's really important to have people willing to roll up their sleeves and either do something not in their job description or learn something new."

Tips for the Uncertain Future

As the tough economic climate spills into the new year, IT leaders offer the following tips on how to navigate an equally tough job market in 2002:

1

CONNECTIONS

Remember to network in order to stay current on what's going on in your skill area and assist in a job search down the line.

— STEVE FINNERTY, CIO, KRAFT FOODS

2

RESOURCES

Make use of company resources, such as educational training, and pursue new skills sets that are worth putting on your résumé.

— MALCOLM FIELDS, CIO, HON INDUSTRIES INC.

3

LEARNING

If professional training isn't available at your firm, look for opportunities to cross-train with a mentor at your company.

— MARIETH WARD, VICE PRESIDENT OF IT, PARSON GROUP

4

REFERENCES

If a layoff should occur, don't burn bridges, because a colleague or supervisor may assist in your new job search by providing professional leads and personal references.

— PARVEZ ERANI, VICE PRESIDENT OF INFORMATION MANAGEMENT, ST. MARY MEDICAL CENTER

5

FLEXIBILITY

Be flexible as the business sets new IT priorities to survive during the economic downturn.

— ERIC DEAN, CIO, UNITED AIR LINES

6

UNDERSTANDING

Hone your project management skills, so that you understand both the technical merits of a development project, as well as the business goals that need to be met.

— MARK WESTLING, CIO, NATIONAL PEN

IT TO COME?

BRIEFS

Domain Registrations Slow

The Internet bubble-burst has reversed the once-booming domain registration market, with more .com, .net and .org domain names being deleted than added, according to an analysis of registrations in October and November by SnapNames.com Inc., a Portland Ore.-based company that studies this market. The company expects the trend to continue, especially as registrars purge names that were once given away free as marketing promotions. There were 23.1 million .com domain names at the end of November, a decline of 113,805 from the previous month.

Report: IT Pays Off

Accelerated investments in IT during the second half of the 1990s have resulted in significant payoff in U.S. labor productivity, according to researchers at the Center for Research on Information Technology and Organizations (CRITO) at the University of California, Irvine.

According to Ken Kraemer, director of CRITO, and Vijay Gurbaxani, professor of information systems, successful IT investments require attention to management practices such as IT alignment with business strategy, employee involvement, total quality management and re-engineering. In addition, firms such as Dell Computer Corp. and Cisco Systems Inc., which have decentralized internal operations but maintain solid technology links to external customers, suppliers and business partners, also tend to realize better returns on IT investments, according to CRITO.

Energy Conference to Highlight Plant Security

Energy plant security is one of the key topics planned for the upcoming Energy IT Conference and Expo, sponsored by the American Gas Association, Edison Electric Institute (both based in Washington) and New York-based *Energy IT* magazine.

The conference, to be held Jan. 13-15 in New Orleans, will feature Willard S. Evans Jr., vice president and CIO at Chicago-based Peoples Energy Corp. Evans will discuss steps that companies should take to meet current and future security challenges. He has assembled a group of experts who will examine the federal government's critical infrastructure protection initiatives and their impact on the energy industry.

For more information on the conference, visit www.energyitexpo.com.

CEO: Help Your Customers Figure Out What They Need

Says companies that say they're 'customer-centric' are in for rude awakening — they're really 'customer-led'

If your IT shop is "customer-driven," you may have to haul it in for a tuneup. That's the message from Anthony W. Ulwick, CEO at Lantana, Fla.-based software and consulting firm Strategyn Inc., in this month's Harvard Business Review, where he explains the dangers of developing products and services based on what customers say they want. Ulwick talked with Computerworld's Kathleen Melymuka about how to determine what customers really need.

Q: You dare to question the vision of the customer-driven company?

A: Although the vision is worthy of pursuit, companies are often confused about what it means to be customer-driven. Many companies think they are customer-driven because they give their customers the features, functions and solutions they ask for. This is not being customer-driven; it is being customer-led.

Being customer-driven requires a firm to understand what the customer is trying to achieve and to devise features and solutions that deliver the greatest degree of satisfaction — features that may be outside the customers' knowledge base and beyond their initial comprehension. After all, how many customers initially asked for transistors, a 32-bit architecture or fax machines?

Q: Why is it dangerous for an IT project manager to listen to customers too closely?

A: It is important to listen closely to the customer, but the trick is to know what to listen for and what to ignore. Since customers are rarely accomplished programmers or engineers, or familiar with the latest advances in technology, their ideas are often confined to something they have seen before — maybe in other products. Giving them what they ask for is likely to result in a "me-too" product.

A qualified programmer is more likely to devise a breakthrough solution,

but only if the customers' desired outcomes are understood.

Q: What is the input you really want from your customers?

A: You want them to tell you everything they are trying to achieve when using a specific application, product or service — what we call their "desired outcomes." In the software environment, you typically obtain at least two sets of desired outcomes: one on

the function of the application itself and the second on the software interface.

In some cases, you may want to obtain desired outcomes on the architecture as well. When discussing the interface, for example, users' desired outcomes may include quick access to all options, minimal exposure to unnecessary functions and quick recovery in the event an input is made in error. Their desired outcomes may be satisfied with a drop-down box, hidden menu items and an "undo" button. Typically, customers have anywhere between 25 and 100 desired outcomes.

Q: You describe a methodology for focusing on the outcomes customers desire rather than on the solutions they think they want. How do you plan an outcome-based customer interview?

A: The objective is to capture a complete set of the customer's desired outcomes. To achieve this objective, it is important to interview the most diverse set of customers. This may include users in different occupations, assignments, locations or positions, or customers that use the product for different purposes or in different environments.

Q: What's the role of the moderator in customer interviews?

A: The moderator's role is to ask the

questions needed to uncover the customer's desired outcomes, listen carefully for the customers' desired outcomes, and document and validate the outcomes with the customers. More than anything else, the moderator must be a good listener.

Q: Describe how a good moderator might turn a vague customer statement into something useful.

A: Let's use the interface as the example. The user of an application might say, "I want a drop-down list that shows me all the files I recently accessed." The moderator may ask, "How will this feature benefit you?" The user may say, "The list will make me more productive." The moderator may dig deeper by asking, "How would this listing make you more productive?" The user may respond, "Well, it would make it faster for me to access the files I use all the time."

The moderator may conclude with, "OK then, would it be fair to say that your desired outcome is to minimize the time it takes you to access the files you use most often?" With the user's confirmation, this would be accepted as an outcome.

If this level of understanding were not available, the programmer would most likely have given the user a listing of the files recently accessed. [But] the operations performed most recently and those performed most frequently are two different things. Many products today fail to make this distinction.

Q: Does a moderator require special training?

A: Yes. Success is dependent on some basic knowledge and practice. The moderator must know the difference between

an outcome and a solution and be able to focus specifically on the collection of desired outcomes. Since the natural tendency is to focus on solutions, this may take a little time. A successful moderator must be able to let the customer talk through a situation to identify the actual desired outcome.

Again, the key is to be a good listener — to know what to look for and what to ignore. ■



ANTHONY W. ULWICK: "It is important to listen closely to the customer, but the trick is to know what to listen for and what to ignore."

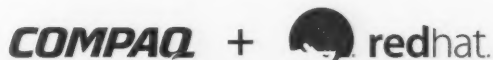
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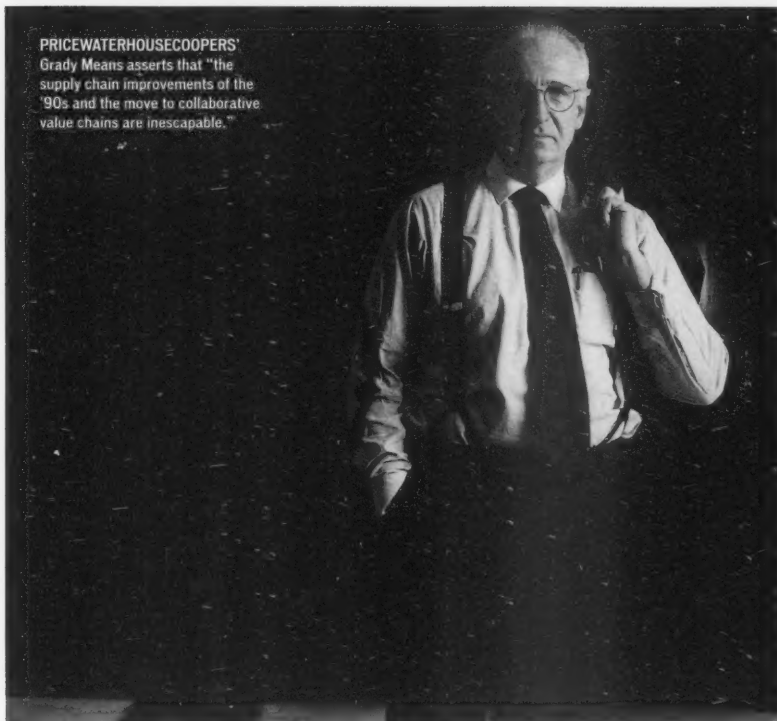
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Grady Means asserts that "the supply chain improvements of the '90s and the move to collaborative value chains are inescapable."



Recession? What Recession?

Despite the talk about recession, terrorism and the collapse of more dot-coms, author Grady Means is decidedly optimistic. Far from being squelched, the Internet revolution is still alive and strong and making a difference in companies' supply chains, he says. Computerworld's Marc L. Songini caught up with Means to discuss the Internet's impact on supply chain management.

Please define metacapitalism. It's basically a transformation of capitalism, per se. For the past 100 years or so, the concept of capitalism has been essentially to organize a company around a large capital base, with a physical plant and equipment and the investment of a lot of money to achieve economies of scale. But one of the observations made during the dot-com revolution was you didn't really need a factory or distribution system. You didn't need to have a large

WHO IS HE?

Grady Means, co-author of MetaCapitalism (John Wiley & Sons Inc., 2000), is a managing partner of the strategy consulting practice at PricewaterhouseCoopers North America in Washington.

marketing operation. You can access people to make products for you so you get much higher capital leverage. You can use the Internet to assemble the supply chain. . . . Companies like Ford are decapitalizing because they can access what they need over the Internet.

Does the Internet really make such a difference to the economy? Before, you could fax or telephone suppliers, but you couldn't get access to a vast supply base instantly. General Motors would use fax and [electronic data interchange] with dedicated suppliers. But today, you want as many bids as possible from suppliers competing against each other to create an auction among a large number of players who all know the rules of supply chain synchronization and just-in-time inventory. What the Internet does allow is a vastly greater number of them to bid at once and drive up quality more quickly and totally change the industry model.

Any caveats after the dot-com crash? Business-to-business uses dot-com concepts of leverage but is a different business model for large companies. It allows them to leverage capital more effectively. Companies are moving supply chains to a virtual model. In spite of all the talk of recession, industrial productivity is increasing. We're talking about a long-scale economic transformation, with companies and organizations using new kinds of business models to drive much higher levels of productivity. Look at it from a historical perspective. They've only been working on Transora [a consumer products industry exchange] for a year to 18 months. There are quite a few private company trade exchanges. As we move forward, the Fords and Procter & Gambles are adjusting their view on how to use both their consortium and private exchanges. The game has been changing aggressively. It's working faster than any other industrial change in history.

Will the terrorist attacks slow the progress of metacapitalism? It will accelerate it. One thing we learned is that having large, centralized physical assets is not a good model. What you want to do is distribute assets and distributed capacity for any given supply chain. You're going to find people working through lessons learned, in terms of disaster planning and recovery, and they are going to move to more distributed models. I think companies will go for more dynamic models that allows [them] to shift very quickly. Government, particularly in the defense arena, needs to adapt quickly to these best practices and develop collaborative relationships to improve performance as well as to supply the war effort.

How can companies survive in this new environment? They have to understand that this world exists. . . . You must figure out your economic model before you even get to the technology. Leverage your brand and leverage your capital. Companies may find owning physical assets doesn't generate much value. Work through your business model and how you want to play using Web-based approaches and technologies. It may be difficult to connect to an exchange, but that's a relatively minor problem. . . . The supply chain improvements of the '90s and the move to collaborative value chains are inescapable. ▀

Dear Career Adviser:

I was recently laid off as a business analyst in a client/server environment and am wondering about the viability of returning to school to finish my four-year degree, which would be quite expensive.

When I first started going to college, I was told there is always a high demand for computer professionals. Now no one seems able to find a place to intern.

— BACK TO SCHOOL

Dear School:

In spite of the current economic downturn, there is still a shortage of skilled IT professionals. Plus, given today's environment, Congress and the government will probably

increase the need for U.S.-trained workers by reducing the number of H-1B visas available for foreign workers, says Grace Gentry, president and chairwoman of the Open Door Education Foundation, an Alexandria, Va.-based nonprofit organization formed by the National Association of Computer Consulting Businesses.

But before you return to school, you might want to explore some of the testing options on Open Door's site,

www.keys2it.org, to gauge your aptitude for and interest in specific careers within IT while also investigating how to finance your return to school.

Readers Write:

Expanding on my advice to "Temp to Perm" [Career Adviser,



FRAN QUITTEL is an expert in high-tech careers and recruitment. Send questions to her at www.computerworld.com/career_adviser.

Oct. 29] regarding PeopleSoft programming skills and job opportunities, Ed Hiney, a board member of the PeopleSoft Southern New England Users' Group (www.ps-snug.org), offers a few comments.

"I have been programming PeopleSoft HRMS and financial applications for five years," says Hiney, "and have never needed Java, C, C++ and HTML. Even for Web-based

PeopleSoft 8, development is done through proprietary development tools [PeopleTools and Application Engine]; PeopleCode, a Visual Basic-like programming language; a [third-generation language] report writer/programming language [SQL]; and Cobol."

However, break-

ing into PeopleSoft, Oracle and SAP jobs can be daunting, particularly without programming skills. First of all, teams usually have five to a dozen technical people for every one or two business analysts. Second, it isn't possible to take classes part time and become certified in PeopleSoft, Oracle or SAP.

In southern New England, Oracle database administrators, as well as wide-area networking and Unix administrators, are hot, but consulting firms aren't hiring, says Hiney.

So if "Temp to Perm" really wants PeopleSoft work, she will need persistence in scouting out opportunities, perhaps through a PeopleSoft partner (www.peoplesoft.com/corp/en/about/pspartner/partner_profiles.asp), by attending local PeopleSoft user group meetings or by expanding her network through <http://groups.yahoo.com/group/peoplesoft-fans>. ■

EXECUTIVE TRACK



SENEGOR

Seattle-based Safeco Corp. has named VOM SENEOR as its CIO. In this role, Senegor will develop and implement IT efforts

that improve process operations and customer accessibility. He will report to Mike McGavick, president and CEO. Senegor joins Safeco from Accenture Ltd., a Hamilton, Bermuda-based global consultancy. As central region management partner for insurance at Accenture, he helped many of the U.S.'s largest insurance companies develop automated underwriting and integrated computing systems. Safeco is the 12th-largest property and casualty insurance carrier in the U.S.

800.com Inc. has hired HOLLY FILES to fill its newly created CIO position. She will report to Greg Drew, president, founder and CEO. Files will oversee information services, technology systems, cus-

tomers service and internal operations. She previously served as vice president of worldwide service at NetIQ Corp., an infrastructure management and intelligence systems provider in San Jose. 800.com, an Internet retailer of consumer electronics, movies and music, is based in Portland, Ore.



SANCHEZ

Miami-based Burger King Corp. has promoted RAFAEL SANCHEZ from vice president of technology and infrastructure to CIO. Sanchez will oversee all aspects of IT. His duties will include providing support for the company's restaurant and enterprise systems and to its marketing and operations divisions. He will report to Chief Financial Officer Bennett Nussbaum. Prior to joining Burger King, Sanchez was director of technology at Minneapolis-based food company The Pillsbury Co.

WILLIAM R. DERRICK has been appointed CIO at Corixa Corp., a Seattle-based developer of immunotherapeutics. Derrick will report to CFO Michelle Burris and will oversee strategic direction on IT initiatives. Derrick previously served as vice president of operations at Edifecs Inc., a business-to-business services provider in Redmond, Wash.

STEPHEN GLASS has been named CIO at Independence Community Bank in Brooklyn, N.Y. He will report to President and CEO Alan Fishman. Glass previously worked at IBM Global Services in the U.S. and Australia helping companies integrate IT systems after mergers and acquisitions. Independence Community Bank Corp. is the holding company for Independence Community Bank.

MARTIN LARSON has been promoted to senior vice president of sales and marketing at Vancouver, Wash.-based Consolidated Freightways Corp. Larson, who was previously vice president of e-commerce and CIO, will retain his e-commerce duties, which are strongly tied to the sales department. He will report to CEO Patrick Blake. His new position is one of three top

leadership roles within Consolidated Freightways.

InsureZone Inc. in Fort Worth, Texas, recently promoted PAUL HARRISON to the position of CIO, reporting to CEO Russell Reid. In this role, Harrison will manage InsureZone's technology infrastructure, including network and telecommunications systems. Previously, he was manager of development at Revenue Technology Services Corp., a transportation software developer in Irving, Texas. InsureZone is an agency that specializes in insurance for small businesses.



SECOR

Boston-based online retailer SmartBargains.com has named RICHARD SECOR as its CIO, reporting to CEO Carl Rosendorf. Secor previously served as CIO at LearningStar Corp., a children's educational products company in Monterey, Calif. Before joining LearningStar, Secor worked at direct marketing services provider WA Wilde Co. in Holliston, Mass.,

first as director of information services and later as CIO.

SmartBargains.com has also hired LAWRENCE CHIANG as its new vice president of technology. Chiang, who will report to Secor, will be responsible for technology operations, software development, systems design and implementation. Chiang was previously vice president of technology and systems at catalog retailer Cornerstone Brands Inc. in West Chester, Ohio.

Gordon Brothers Group LLC, a Boston-based retail restructuring, finance and advisory firm, owns SmartBargains.

Seattle-based Starbucks Coffee Co. has appointed BRIAN CRYNES as its CIO. He will report to CFO Michael Casey. Crynes will be responsible for directing worldwide investments in technology and infrastructure, including integration of supply chain management, customer relationship management, sales, human resources and financial service systems. Previously, Crynes was CIO at Coca-Cola Amatil Ltd. in Sydney, Australia, where he integrated customer-centered e-business systems for various markets in the Asia-Pacific region.

TECHNOLOGY

THIS WEEK



MIXED MESSAGES

Technology users are divided over the role of instant messaging in the workplace. Some see it as a quick communication tool, but others say it's only a distraction. **PAGE 40**

QUICKSTUDY

Perl is an open-source scripting language whose syntax is similar to that of C. Created in 1987 to simplify systems administration tasks, Perl has evolved into a powerful and flexible programming environment. Learn more in this week's primer. **PAGE 42**

FUTURE WATCH

Most computers are idle most of the time, but researchers are finding ways to harness that wasted power and anticipate users' needs. **PAGE 43**

SECURITY JOURNAL

When an operations manager chooses to ignore security vulnerabilities, it's the security manager who bears the responsibility for any incidents that may occur as a result. Mathias Thurman must decide whether to confront the manager or let the matter drop. **PAGE 44**

EMERGING COMPANIES

FineGround's Condenser speeds dynamic Web page loading by transmitting only changes to the user's browser, and it doesn't require a browser plug-in. **PAGE 46**

NICHOLAS PETRELEY

The Pundit Speaks

THE BOOK OF DEUTERONOMY (loosely translated as "the second law") says that if a prophet makes predictions that don't come to pass, he is a false prophet and shall die. So let me make this abundantly clear: I am not a prophet; I am a pundit. We pundits follow the book of Neuteronomy (loosely translated as "the null law"), which says that if a pundit makes a prediction and it does come to pass, his pundit's license may be revoked.

With that in mind, my first prediction is that the IT economy won't recover in 2002. As long as the U.S. isn't able to bring the war on terrorism to a satisfactory conclusion, the economy will stay in a slump. George W. Bush has done an excellent job so far, but he can't undo decades of mishandled foreign policy that has handcuffed the U.S. and painted it into a political corner. (Note to self: Reverse the order of that mixed metaphor; otherwise, the U.S. doesn't have any hands free for painting).

If I were a political pundit, I would explain why I believe this is true, but since I'm not, I'll assume that I can make outrageous political generalizations without having to support them. If you disagree, feel free to send me an e-mail, and I'll ignore it as soon as possible.

The continuing weak economy leads me to my second prediction: We will see a renewed interest in network computing by the end of the year, especially from IBM and Sun. This will be a good thing, if it turns out to be true.

As far as IT is concerned, network computing — especially Java-based network computing — has everything going for it.

For one thing, it's a terrific answer to one set of problems that has plagued IT since the rise of the Internet: Trojan horses, worms and viruses. Most worms, Trojan horses and viruses are introduced into a company's network because it's nearly impossible to stop employees from running infected programs on their desktop machines.

I say nearly impossible because it isn't completely out of the question. But it's far more costly than the network computing model.

If you have 2,000 employees, you have to protect 2,000 machines. If you take the thin-client approach to network computing, your users don't run applications on their desktops — the IT department runs them at the server. So, you have to

protect only a handful of servers instead of thousands of clients.

The only problem with thin clients is that they load down servers and fail to exploit the inexpensive processing power you can put on every desktop.

That's why Java is the ideal answer. Java applications run at the desktop, so they take advantage of today's inexpensive processors while relieving the server of much of the work. Java applications are also platform-neutral, which encourages competition. And Java doesn't carry with it the same risks as native PC applications, because you can run Java programs in a restricted "sandbox."

Here's the problem: The only way for network computing to gain momentum is if companies like IBM and Sun sell lots of client machines at a loss or at extremely low margins and then make up the lost revenue in server sales and support.

The plan is sound, but in the past, neither IBM nor Sun nor any of the other players have hung in there long enough to make it work. If they can be more patient this time, then I have two more predictions.

First, Linux will make a big splash on the client. Linux is the ideal foundation for a network computing client. It's free, which means companies that sell network appliances don't have to pay royalties to use it. It runs X11, which means you can use it as the basis of a graphical thin client. It runs Java, which means you can use it as the basis for a Java-based network computer.

It's also easy to configure a Linux box to run native programs in a safe sandbox, which means you can reap the benefits of network computing without having to take the thin-client or Java approach.

And finally, Microsoft will try to turn the Xbox game console into a network computer that locks customers into Windows at the server. Unfortunately, this last prediction is such a no-brainer that it's likely to come true, an event that would put my pundit license in jeopardy. ■



NICHOLAS PETRELEY is a computer consultant and author in Hayward, Calif. He can be reached at nicholas@petreley.com.

INSTANT MESSAGING (IM) conjures up images of bored teenagers using a software-based gossiping tool. Most IM programs are free, and few competing products can talk to one another, making skeptics wonder how useful IM is in the enterprise.

But some business users, especially remote workers parked in front of desks all day and eager for contact with colleagues, have become avid users of IM as a way of quickly swapping messages and information.

The jury is still out on whether IM increases workplace productivity. But even people who believe that IM isn't an ideal business technology, with its rapid-fire text messages, acknowledge that there are problems with the alternatives. E-mail and voice mail pile up, and a recent report found that more than 60% of business phone calls never reach their intended recipients. Such deficiencies may help explain the growing number of IM users: According to Stamford, Conn.-based Gartner Inc., 42% of business Internet users use IM in the workplace, even though 70% of IT departments don't support it.

While many executives aren't convinced of its worth to the enterprise, "the tens of millions of people using IM through the Web must be getting some benefit," says Dana Gardner, research director for messaging and collaboration services at Aberdeen Group Inc. in Boston.

Organizations like the U.S. Navy, which uses Lotus Software Group's Sametime for secure, almost instantaneous ship-to-ship and submarine-to-shore communications, say IM makes life easier. The Navy values having written transcripts of all orders and communiqués, which is possible using Sametime.

Other early adopters concur that IM is a low-cost tool that helps their employees communicate more effectively. But on the other side of the debate are businesses like a West Coast insurance company that opted not to roll out corporate IM software, because its claims agents were always on the go and didn't find it useful (see sidebar).

Functionally speaking, almost every IM program is identical — users have a list of other people's IM handles, and they click on a name to initiate a chat session. Then the two or more people write text messages that are delivered almost instantly and persist in a window on one another's machines. Sametime, which costs a few thousand dollars for a couple hundred seats, adds myriad features, such as the

ROBERT NEUBECKER



THE INSTANT MESSAGING DEBATE

Enterprise users must decide whether IM provides quick communication that boosts productivity or is only a distraction from real work. **By Mathew Schwartz**

ability for one user to see what's on another user's screen (if permission is granted) or even to remotely manipulate another user's computer. A few hundred Sametime users can be hosted off just one dedicated Pentium PC or an AS/400.

Corporate IM software includes features and functionality that are missing from the free versions. For instance, Sametime has high-level encryption and features such as a whiteboard that's viewable by all participants. It also allows other participants to watch what someone is doing on his computer screen. In many cases, corporate IM software can alleviate the need for face-to-face meetings or at least make

collaboration among dispersed groups much easier. And IM systems administered in-house can be a start to a corporate-wide rollout of IM and presence information, according to Gardner.

"I think it will become a critical corporate tool, but not for obvious reasons. IM has a strategic benefit that might escape people just looking at it as a chat tool," Gardner says. "That is, you can take advantage of the presence detection that is incumbent with IM and broaden that presence to be a rich profile of how people should be communicated with best."

One major impediment to IM gaining wide corporate adoption, especially for large supply chain and business-

to-business applications, is the lack of a single IM standard. The problem is political, not technical: free IM software makers earn money from advertising that runs across the top of their IM windows, and Dulles, Va.-based market leader America Online Inc. has been reluctant to let any other free software communicate with its AOL Instant Messenger, even when faced with government pressure to do so.

And so, free software — such as Instant Messenger, which alone claims more than 60 million users; ICQ, another AOL IM service; Internet Relay Chat; Yahoo Inc.'s Messenger; and Microsoft Corp.'s MSN Messenger — can't talk to one another, and neither

can corporate (meaning not free) IM software, though Sametime does work with Instant Messenger. Nevertheless, IDC in Framingham, Mass., predicts that worldwide, corporate IM use will shoot up from 5.5 million users in 2000 to 180 million users in 2004.

For corporate use, having a closed IM system may be a boon. For instance, law firm Beckman & Hirsch in Burlington, Iowa, uses Lotus Sametime 2.5, which keeps all IM communications encrypted, with one PC acting as a dedicated server.

"It's really got security," says senior partner and attorney David Beckman.

Beckman says he was initially cool to the idea of using IM in the workplace. "My feeling about IM after watching my teenagers use it was that it was the curse of society, that it should be banned not only from the workplace but everywhere else you can think of," he says. "Now I've done a 180-degree turn."

Sametime lets the law firm's remote workers maintain efficiency. For instance, they can collaborate remotely when writing documents, because the program lets users view what's on one another's PC screens.

"It improves productivity," says Beckman, because it lets him communicate with more than one person at a time. In addition, IM makes telecommuting seamless, he says. For instance, one of his paralegals telecommutes four days per week. "Most days, I don't know she's gone, because I [message] her when she's here and when she's a hundred miles away," he says.

Tool Versatility

Though IM software is relatively simple, research conducted by Steve Whittaker, a senior research scientist at AT&T Labs - Research in Florham Park, N.J., found that as a tool, IM is highly effective at mimicking the complexities of actual conversations.

"One of the points we discovered is that what is apparently idle chitchat one minute can be work the next and vice versa. IM seems to be most supportive of any technology of the social processes, but that doesn't mean it doesn't support work as well," says Whittaker.

Employees at Newton, Mass.-based systems integration company Nervewire Inc. are increasingly using AOL's Instant Messenger as a primary means of communication.

"We actually encourage it and made it explicit by compiling the list [of user names] and sending it out to everyone so they can just load it in [Instant Messenger]," says Kipp Lynch, director of user experience and manager of the user interface group.

Almost the entire company uses the program, though it was never agreed upon per se as a standard. With the company spread over three floors of a building, Lynch says, it's great for quick questions.

"I used it a lot more when I was doing work in Finland recently. It was

nice to have some quick contact with the people you're used to seeing every day," says Lynch, adding that Instant Messenger made it easy to check in with the employees he manages and be available to answer questions.

But IM can create awkward moments. For example, Instant Messenger doesn't automatically deactivate when a laptop it's on is plugged into an LCD projector. During a recent Nervewire meeting, Lynch says, a co-worker's childhood nickname was revealed during a presentation when an IM message from an old friend popped up that read, "Hey hey, Bobbado!"

Nervewire hasn't settled on any single IM program and may switch off of Instant Messenger in the future, Lynch says. "But instant messaging is a function that we want to keep," he adds.

The 6th Judicial Circuit Court in Florida in the counties of Pasco and Pinellas has been using QuickConference, a secure IM program for internal

use only, for more than seven years. According to Jim Weaver, senior court systems analyst for the 6th Circuit, when he ran a trial of IM software, it proved to be a simple and inexpensive way for courtroom-bound judges to keep in touch with their judicial assistants, who might be down the hall or in a building in the next county.

"If there's anything the judge needs to know while the trial is going on — jury instructions, trial information — he can communicate with his [judicial assistant] or a clerk from any computer," says Weaver, who runs QuickConference on two 256-MHz Pentium 800 workstations for redundancy for his 250 users. Pricing is about \$800 for 100 user licenses; every user license is also a server license, and the software works on both Macintosh and Windows computers.

On the user's PC, QuickConference is a simple program with features similar to those of most other IM programs. A window shows which users are logged on. Clicking on a user or a group starts an IM session, and a new messaging window appears on-screen. Users can send a message to one person or to a whole group.

The informal aspects of IM can come in handy in the courthouse. For example, judges and clerks are legally required to keep a copy of all their e-mails, but not their instant messages. "So if it's something real quick and little... like 'You want to go to lunch?' where it's not work-related, they may want to use QuickConference," says Weaver. ■

Schwartz is a freelance writer in Arlington, Mass. Contact him at Mat@PenandCamera.com.

IM Use

In companies where IM use is approved, what program do employees use?

PROGRAM	PERCENTAGE
Lotus Sametime	27%
AOL Instant Messenger	26%
Yahoo Messenger	15%
Other	32%

SOURCE: SURVEY OF 180 BUSINESSES, JULY 2001. OLSTERMAN RESEARCH INC., BLACK DIAMOND, WASH.

Waiting for Convergence

Some of the companies that are holding back on adopting IM are waiting for the technology to converge with other methods of electronic communication. The head of business disaster recovery at a large West Coast insurance company, who spoke on condition of anonymity, says his help desk and repair workers evaluated several instant messaging products — and passed on adopting any of them.

"During emergencies, they thought instant messaging might be a really cool thing, but it became cumbersome, because people would run off and use the

cell phone and not really type," he explains. "Again, you're trying to do other things, not always answer some guy's message."

His workers often aren't in front of a PC, so they prefer to communicate by using the walkie-talkie-style feature of cell phones from Nextel Communications Inc. "We use those extensively," he says.

Among his business peers, talk of IM is "mostly excess talking about their kids using AOL and how cool it is, but I have not heard about it positively in the work environment," he says.

The day may soon come when devices incorporate IM and cell phone features, says Steve Whittaker, a senior research scientist at AT&T Labs-

Research. But there are major architectural and political issues to overcome.

"Ultimately, you'll see programs that will let you use IM to set up a phone call," he says. Through one software program or future wireless phone or personal digital assistant, users could query someone's availability via IM and then initiate a call or send an e-mail if the person isn't there.

"I'm certain that at some point, all these various systems will be very well-linked. With IM, I think the phone link is a key one," Whittaker says.

— Mathew Schwartz

Perl

DEFINITION

Perl is an open-source scripting language whose syntax is similar to that of C. Created by a single programmer in 1987 to simplify systems administration tasks, Perl has evolved into a powerful and flexible programming environment. It has strong text-manipulation capabilities and is especially useful for developing Common Gateway Interface programs.

BY SHARON MACHLIS

LIKE MANY Linux and Macintosh fans, devotees of Perl love their technology and defend the language passionately.

Case in point: One major Perl user group doesn't refer to its members as "users" or even "advocates." Instead, it calls them "Perl Mongers."

"Perl attracts people because it's full of nooks and crannies," says Jon Orwant, editor of *The Perl Journal* and a member of the Perl Mongers advisory board. "The motto is, 'There's more than one way to do it,' and the language allows a creative writing approach. There's always room to learn about neat new ways to do something."

Perl is also a good choice for speedy application development, advocates say.

Small but Complete

Initially developed by Larry Wall in 1987 to automate some Unix administration tasks, Perl has become a popular environment for creating a wide range of applications. It's relatively easy to write small scripts for simple tasks, but the language is powerful enough to satisfy top-notch code jocks.

"Other languages strive to be elegant or very small; Perl strives to be complete and easy

to use," wrote Paul Hoffman in *Perl for Dummies* (Hungry Minds Inc., 2000).

Because Wall solicited contributions from programmers worldwide for both the open-source code and add-on modules, Perl has capabilities far beyond its systems administration roots. It has a robust debugging environment, and its modules aid tasks such as processing HTML and XML data.

Perl includes object-oriented capabilities, which many IT teams prefer for multiperson development projects. However, programmers working on simpler tasks don't need to use objects, and thus the language is useful for both sophisticated Web e-commerce tasks and simple data manipulation.

Perl is one of the most popular languages for creating Web applications — Amazon.com Inc. is among the many well-known Perl users — as well as for developing front-end access to databases and network services. "Most of the Fortune 500 uses Perl," Orwant says.

Many developers still consider Perl an ideal environment for reading, analyzing, manipulating and storing text files. In fact, Perl stands for Practical Extraction and Reporting Language, although the full name is seldom used anymore. To some IT organizations, Perl is attractive when compared with competing technologies because it has been around for a while, so experts have had plenty of time to fix

bugs, stabilize the platform and find security holes. Its 14 years trump many other well-known open-source projects, such as Linux and the Apache Web server.

Adam Faust, Web administrator at the Knoxville-based Tennessee Valley Authority, recently used Perl to create a Common Gateway Interface for the power company's Web site. He says the Perl archive network and modules were able to tie in to both the TVA's Oracle database and its IBM WebSphere application server. "In a lot of cases, it's more mature than Java," Faust says.

Platforms Galore

There are ports of Perl source code to run in most major environments, including Unix, Windows, IBM's z/OS, OpenVMS, Novell Inc.'s NetWare and Macintosh. There's even a version for Windows CE, although there's no port yet for Palm OS. Perl isn't considered an ideal choice for things such as embedded applications because of its relatively large memory footprint, notes Orwant.

Advocates of other, more specialized languages also say that Perl's general-purpose flexibility can make it a bit more cumbersome for certain tasks than more targeted languages.

For example, some users of the open-source scripting language PHP say it's easier to develop dynamic Web applications in PHP than in Perl; PHP has some Web functions built in that Perl requires modules to perform. However, many who develop their Web pages in PHP still turn to Perl for other back-end functions.

Perl source code is available for download at no charge from the Comprehensive Perl Archive Network at www.cpan.org, along with numerous modules. ▀

Quick Link

To see a Perl script that generates HTML code for viewing a photo collection, see

www.computerworld.com/q724469

PERL RESOURCES

Perl.com:

The Source for Perl

www.perl.com

From publisher O'Reilly & Associates Inc. in Sebastopol, Calif., this site features tutorials, code downloads, articles and other resources, as well as the latest Perl-related news.

Comprehensive Perl Archive Network

www.cpan.org/

CPAN is the place to get the latest versions of Perl, as well as numerous open-source Perl modules and scripts. There are about 175 CPAN mirror sites worldwide, and hundreds of developers have contributed code to the archive.

Perl Mongers

www.perl.org

This major Perl user group's site includes sections about learning Perl and Perl-related jobs. Under the section called For IT Managers, you can find an outline of how Perl can reduce business risk.

ActiveState Corp.

www.activestate.com/

Along with offering Perl developers tools, Vancouver, British Columbia-based ActiveState has a free distribution of an enhanced version of Perl called ActivePerl for Linux, Solaris and Windows.

Perl Tutorial

<http://archive.ncsa.uiuc.edu/General/Training/PerlIntro/>

A resource from the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign.

DevShed

www.devshed.com/Server/Slide/Perl/ Perl tutorials from Developer Shed Inc. in St. George, Utah, including basics of the language and how to use some popular modules.

Data Sorting Using Perl

This code opens a text file, sorts the lines of data alphabetically and stores the sorted data in a new file:

```
open (ORIGFILE,
      "unsorted.txt");
open (FINALFILE, ">sorted.txt");
print FINALFILE
  sort(<ORIGFILE>);
close (FINALFILE);
close (ORIGFILE);
```

Points of View

PROS

- Powerful
- Flexible
- Relatively easy to learn
- Allows quick application development

CONS

- Sometimes eclectic syntax
- Large memory footprint
- Can be more cumbersome for some tasks than more specialized languages

MICROSOFT CORP. researcher Eric Horvitz says he's trying to figure out "what a computer should worry about when its thumbs are twiddling." Computers spend a huge amount of time twiddling their digital digits, wasting computational resources, he says.

Computers shouldn't be surprised by requests, especially from regular users, says Horvitz. For example, a PC running a network application could, while temporarily idle, prefetch and cache content from the Internet that a user may need later. Horvitz calls this "continual computing," in which computers stay busy by anticipating users' wishes.

Ethernet inventor Bob Metcalf estimates that more than 99% of the world's computer capacity is wasted. He points out that modern microprocessors, such as Intel Corp.'s Itanium, engage in speculative execution — in which some values are computed or retrieved before they are needed — while doing other work. He says that principle should be moved to higher levels, to the operating system and to application software.

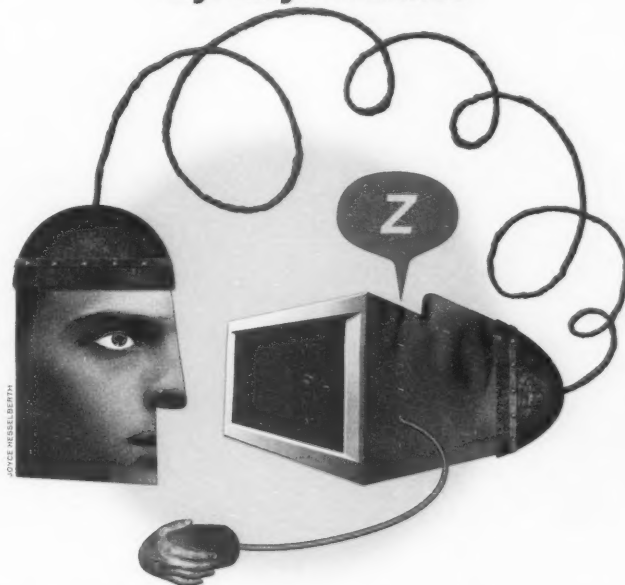
"What's done at the hardware level is really minuscule compared to what could be done," says Metcalf, a partner at Polaris Venture Partners in Waltham, Mass. "This is a very old, deep idea that needs to be pursued much further than it has." He calls the idea "anticiparallelism."

Metcalf argues for new control structures in languages that make it easier for programmers to enable anticiparallelism. "We need constructs that would let you say, 'Here's a bunch of things that need doing, and here's an expression of their priority,'" he says.

Some elements of continual computing are embodied in

Idle cycles can be used to prefetch and precompute information.

By Gary H. Anthes



IBM's Autonomic Computing initiative, which aims to make systems self-managing. IBM is developing software that can reconfigure itself while constantly striving to optimize its own performance. "It will monitor its constituent parts and fine-tune workflow to achieve predetermined system goals," according to IBM.

In Horvitz's model, continual computation requires the computer to examine possible actions and execute those with the highest "expected value." Expected value is calculated by multiplying the probability that the user will want to take a path by the val-

ue of having it done in advance. The greater the delay avoided, the greater the value.

Many applications could take advantage of continual computation, Horvitz says. "Imagine if [Microsoft] Outlook maintained a set of probabilities based on you as the user — what you tend to do with e-mail messages, how you tend to view them, how you go back to them," he explains. Delays would be minimized because Outlook would perform many tasks before being asked, Horvitz claims.

"And Microsoft Project could sense when you are going to call for an optimization

or when you are going to recalculate things in Excel," Horvitz says. "It might be doing this quietly in the background when it had idle time."

A server-based application could build a statistical model of client activity in order to assess the probability that any given piece of information would be requested by a user.

"Instead of waiting for a pull from the client, the system watches for any available bandwidth and then pushes down bits of data," Horvitz says. "The client always looks in local cache first, and it tends to find things that are miraculously there."

Might users complain when the system anticipates incorrectly? No problem, Metcalf says. "The basic idea with contingent computations is that if [they were] wrong, they would not be noticed, just thrown away," he says.

Unwanted Assistance

But Horvitz can imagine software that's more in-your-face with anticiparallelism. For example, it might offer assistance, change a display or bring up a new application it thinks you need. That could lead to "frustration with a 'smart' system that just may not be smart enough," he says. Microsoft is studying that problem and is developing ways for systems to assess their own fallibility on the fly and seek reactions and guidance from users, Horvitz says.

Horvitz would also like to see operating systems engage in continual computing. An operating system running on a server would have to predict client behavior as well as machine and network resource availability. Microsoft calls its work in this area the Crystal Ball project.

Horvitz says his methods amount to load-balancing, and if all network-based applications did it, demand spikes that sometimes slow Internet servers and routers could be greatly diminished. But, he warns, "if someday everybody does continual computation, those who do it more poorly than others will have slower systems, more latency."

Asked if all Microsoft products will someday continually compute, Horvitz will only say, "You can be sure that applications that use very intensive resources in a networked setting will be using proactive caching techniques, and continual computation is probably the best way to do that." ■

Anticiparallelism

Vulnerability Draws Yawn From Operations

Detecting a security threat is easier than persuading managers to act on it, as Mathias discovers

BY MATHIAS THURMAN

YOU'VE JUST COMPLETED an extensive vulnerability assessment and have compiled the results. You give the report to the appropriate manager, who decides not to implement some of the corrective actions associated with a discovered threat. You want to be diplomatic about getting the discrepancies fixed, but you don't want to alienate anyone or create enemies. What do you do? I recently faced this very problem. Here's what happened and how I resolved it.

A Problem Appears

As part of a recent virtual private network (VPN) initiative, I performed a vulnerability assessment of about 1,500 remote laptops that will soon be loaded with the VPN client software. The laptops are all configured using the same software image, so by assessing one, I should be assessing them all — assuming that users haven't changed anything on their laptops.

I used automated tools for the assessment, including Internet Scanner from Atlanta-based Internet Security Systems Inc. and Nessus, the open-source vulnerability scanning software. The combination should address 95% of potential vulnerabilities. I also conducted a manual review of some of the permissions and other security-related settings available in the operating system.

My assessment revealed a serious vulnerability in Windows NT. The configuration allowed the creation of a null session, which a hacker could exploit to connect to the laptops and read files without authentication.

As I mulled these results at my desk one evening, I heard a knock at my

door. Standing in the doorway with his arms crossed was the CIO. He wanted to know the status of a recent virus attack that had plagued our network. Unfortunately, I couldn't give him the details he wanted. My security architecture position doesn't include ongoing virus-detection responsibilities, so I referred him to the operations group.

The message, however, was clear.

When a security event occurs and the CIO gets involved, he will immediately turn to the security manager for answers and, in some cases, accountability. If an incident like this occurs only infrequently, I can live with it. However, if it were a weekly occurrence, the CIO might start to question my effectiveness. In other words, I could end up paying for mistakes made by the operations group.

With that episode fresh in my mind, I went to a meeting with operations group managers to discuss server and workstation baseline

image issues. I asked the security department to scrutinize all baseline configurations prior to release and that subsequent changes to the baseline images also be submitted for reassessment.

If a modification caused a departure from the previously secured baseline, then a retrofit of the existing infrastructure would need to be explored and executed to ensure that all installations remain within security best practices.

I mentioned my recent laptop assessment and recommendations but met resistance from the operations manager in charge of laptop configurations. My assertion that the null-session problem was a serious vulnerability didn't sway him. Instead of raising concerns and putting him on the spot, I decided to take the issue off-line.

After the meeting, I pulled the man-

ager aside to impress upon him the severity of the security issues I had discovered. I also asked why he wasn't considering incorporating my recommended corrective action into the baseline images and retrofitting the laptops.

He made several excuses, but his main rationale was that "in six months, we'll be upgrading to another operating system, and making dramatic changes at this point might cause more trouble than it's worth."

This appeared to be a lose/lose situation for a security manager. Do I force a confrontation with the manager or keep quiet and risk the CIO's wrath?

Pushing the Issue

I decided to respond by introducing the manager to what I call a risk accountability document. If, at the end of the day, a manager doesn't want to implement a specified corrective action to a known threat, I create a document that delineates the vulnerability, the corrective action necessary and the risk of not closing the security hole. I then ask the manager to write down the justification for why he has chosen not to perform the corrective action and sign it. That document goes to the CIO for signing. If an incident occurs based on a previously documented vulnerability, I have a document that in effect releases me from liability.

No manager is going to sign this, of course. But the process forces the manager to be accountable for the risk involved in not fixing the problem.

When the operations manager read through the document, he quickly decided that the problems were serious enough to warrant a change and committed to scheduling a retrofit of the vulnerable systems.

I decided to push my luck. I wasn't comfortable with the administrative password used on the desktop computers, I said. It was easy to guess, it didn't conform to the company's password policy, and many employees already knew the password. Future plans would incorporate the use of SecurID tokens for administrative access to systems, but until then, the password should be changed and controlled. The manager

SECURITYBOOKSHELF

Securing Windows NT/2000 Servers for the Internet by Stefan Norberg and Deborah Russell (O'Reilly & Associates Inc., 2000). O'Reilly continues to produce excellent reference material, and this book is another example. If you are responsible for Windows NT or 2000 security, this book is a must-read. The authors provide details on many of the core elements of Windows security, from services to profiles and general best practices. Rather than simply telling the reader to check this box or stop that service, they describe the purpose of the service or option and any ramifications of disabling it. One caveat: The book doesn't include information on securing Internet Information Server.

LINKS:

www.tivoli.com/products/solutions/operations and www3.ca.com/Solutions/SubSolution.asp?ID=2846: Enterprise management software suites such as IBM's Tivoli product and Computer Associates International Inc.'s Unicenter are powerful tools for implementing and managing security configuration changes across desktop and server computers.

www.nessus.org/index2.html: The source for the Nessus remote-scanning tool, which is available for Windows or Unix systems.

www.iss.net: I used Internet Security Systems Inc.'s Internet Scanner in my security assessment. You'll find more information about it here.

frowned, clenched his teeth and agreed to address this problem as well.

The manager was, in fact, quite embarrassed about the password issue and asked me to keep it quiet. I agreed, as long as steps were being taken to remedy the situation.

I think my method of dealing with this problem was fair and straightforward. But perhaps I could have finessed the situation somehow without forcing the manager into a corner. Have you faced a similar scenario and come up with a better solution? If so, I invite you to share your experiences in the Security Manager's Journal forum. ■

Quick Link

For more on the Security Manager's Journal, including past journals, visit: www.computerworld.com/q7q2000

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Dynamic Web Pages Prepared for Takeoff

FineGround's content-acceleration server speeds load times of dynamic Web data

BY PIMM FOX

YOU WON'T FIND any mention of FineGround Networks Inc. or caching technology sandwiched between the articles about Cameron Diaz or Madrid in Sky, Delta Air Lines Inc.'s in-flight magazine. But without FineGround's ability to speed up the delivery of dynamic Web page content, your trip might lack food, beverages or a clean cabin.

Atlanta-based E-Gatematrix LLC (a subsidiary of Zurich-based Swissair Group) provides catering and flight services to all Delta flights using 30 subcontractors located throughout the route structure of Atlanta-based Delta.

But because the information changes constantly — E-Gatematrix provides 54,000 meals a day at 180 domestic catering locations — the online system has to quickly serve up new data on dynamic Web pages without compromising download times. In some cases, users might scroll through 10 to 15 screens of data for a day's worth of flights to find that only two items have changed on each page. "Try doing that with less than a 56K connection," says Robert Eads, CIO and executive vice president at E-Gatematrix.

The Web Condensed

Campbell, Calif.-based FineGround's Condenser software uses what the company calls delta optimization technology to transmit to an end user's browser only the Web-page data that has changed since the previous view. The browser has the rest of the page information in its local cache. But the technology doesn't require

a browser plug-in or other software on the client. Condenser, which runs on Linux or Solaris servers, includes techniques for optimizing graphics and other embedded objects. It also accelerates Secure Sockets Layer (SSL) transactions by encrypting and transmitting

only changed elements. And a connection-pooling feature allows users to manage connections to various application servers and related data via a browser interface.

"When the user requests a page, the Condenser identifies the user's browser type and applies those technologies supported by the browser," says Nat Kausik, president and CEO of FineGround. "A user at a desktop PC might realize the

Condenser ... applies those technologies supported by the [user's] browser.

NAT KAUSIK, CEO,
FINEGROUND NETWORKS



FineGround Networks Inc.

42 West Campbell Ave.
Suite 201
Campbell, Calif. 95008
(408) 376-0570

Web: www.fineground.com

Niche: Web content-acceleration server software optimizes SSL traffic and dynamic Web page content.

Company officers:

- Nat Kausik, president and CEO
- Jay Jawahar, vice president of engineering
- Kevin Kirksey, vice president of sales
- Zack Urlocker, vice president of marketing

Milestones:

- February 2001: Company and Condenser technology launched.
- May 2001: SSL acceleration added.
- September 2001: Condenser 3.0 released.

Burn money:

\$21.3 million from New Enterprise Associates, Worldview Technology Partners and private investors, including \$16.5 million in July 2001

Products/pricing: \$50,000 per server CPU

Customers: Muxtel.com Inc., E-Gatematrix, Hilton Hotels Corp., People's Bank Corp., United Rentals Inc. and Keen Inc.

Red flags for IT:

- Faster display of dynamic page updates won't help if page-generation process is the bottleneck.
- Technology is complementary to, not a replacement for, content delivery networks.

benefit of one set of FineGround technologies designed for a full-blown browser, while a user on a Pocket PC will see a different set of FineGround interfaces because of the smaller footprint."

"The types of content that folks are using on their Web sites has changed," says Greg Howard, an analyst at The HTRC Group LLC in San Andreas, Calif. In a September 2000 HTRC study, 87% of 100 Web site decision-makers said their companies were using dynamic content on their sites. Howard says that figure held firm in a July 2001 survey of 100 Web site decision-makers.

But the percentage of companies that said they're adopting secure-content technologies — which typically generate dynamic or personalized content — rose from 72% in 2000 to 76% in 2001, and the percentage using personalized content from XML-based applications jumped from 27% to 67%. Both content types require pages to be refreshed regularly. Howard says FineGround's technology can speed access to such pages because it optimizes based on what's already in the user's cache.

"There is a good market for them," he says. "They've shown it works, and [they] are shipping a product."

However, the technology doesn't help generate content faster, nor does it optimize transmission over the

Internet. So companies may still need a content management system or a content delivery network service.

But where dynamic content is concerned, E-Gatematrix's Eads says he has no complaints. "When I'm pulling down the shopping cart containing Delta's ground manuals — 30 to 40 pages — the first time, it can take two to three minutes," says Eads. "That's now down to about five seconds using FineGround."

The installation required a day of demonstration and testing, followed by one day of an engineer's time. "We're seeing a 371% improvement in response time," says Eads. ▀

the buzz

STATE OF
THE MARKET

Fast Caching in The Slow Lane

The current economic slowdown both helps and hurts companies like FineGround, says Greg Howard, an analyst at The HTRC Group. "There's hardly any new spending for added infrastructure, [but] you have to manage increasing capacity demands with what you have, and that means using technology that caches content in one form or another," says Howard.

The benefits of personalized and dynamic content aren't available from traditional content-delivery service offerings like those from Akamai Technologies Inc. Companies that offer content delivery services typically cache only static objects such as logos and icons. Cambridge, Mass.-based Akamai uses XML as a core element to build pages dynamically from its edge servers, but this requires users to rewrite content to take advantage of Akamai's XML hooks. That leaves Web site administrators who need the benefits of dynamic Web page caching with offerings from a few smaller vendors.

Pivia Inc.

Cupertino, Calif.
www.pivia.com

Pivia's Dynamic Application Caching service accelerates loading of frequently accessed content strings, specifically database queries. Pivia focuses on caching at the Web server, while FineGround focuses on the browser.

Fireclick Inc.

Los Altos, Calif.
www.fireclick.com

Fireclick offers its Netflame dynamic caching as a software product or as a hosted service. It uses predictive caching and works by forwarding cached data to the end user's browser in anticipation of the next page request. The predictive technology requires an 8KB Java applet on the client.

CacheFlow Inc.

Sunnyvale, Calif.
www.cacheflow.com

CacheFlow's cIQ offers reverse-proxy-caching server appliances that accelerate the delivery of static, dynamic and streaming media content.

—Pimm Fox

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System Analyst to analyze projects for market Risk Mgmt. Develop systems to capture and transform trading positions and market financial data. M.S. or equivalent. Min 2 yr exp in Finance/Computer Science. CV: Market Risk Mgmt., 127 Public Square-0501, Cleveland, OH 44114 No Calls, EOE.

Investment firm requires network administrator to maintain and develop secure computer network, data transmission software and hardware infrastructure for 40 users. System includes Exchange Server, SQL Server, Client/Server applications, VPN, routers, firewalls. Responsibilities include maintaining and developing secure database connectivity with outside data providers; securing network access points; providing support to users; testing, selection, recommendation and purchase of new hardware/software. Requires 2 years experience in the job title. Submit resume to: Human Resources, VEZ Systems, P.O. Box 525, Cresskill, NJ 07626.

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Programmer/Analyst wanted by EFS Services, Inc. in Indianapolis. Must have degree in Computer or Math and experience in Java. JSP, JRun, Oracle 8.0, SQL Plus. Please send resume to: Bryan Miller, EFS Services, Inc., 8425 Woodfield Crossing Blvd., Suite 401, Indianapolis, IN 46240. No calls please.

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Software Engineer-Scientific - Design, & develop sw for mfts char & Xatlog. Create GUI & sci code to conduct computations req. for XRD. Create Xatlog tools & perform cust support. Requires PhD or equiv in Chem., Phys or Mat. Sci. Hands-on exper with the xprmtl/comp tools of XRD incl single xstl, quasi-periodic & polystylin mts. Proficient VB, Java, C, C++. Need 4 yrs work/ed combined; exp in algorithm dev, graphics & web programming & applets (exp to be proven by program submitted); demonstrate ability to perform adv. research through pubs in referred sci journals. Salary \$80K. Respond: PO Box 791, Livermore CA 94550. Interview & Loc: Livermore, CA.

Web Developer wanted by Fountain Valley, CA company in import and distribution of automobiles. Will participate in development of Internet and Intranet applications, databases, web pages in multiple environments, platforms and assist with development of Java applets and web applications and Java applets based services, test development and creation of documentation. Bachelor's degree in Computer Science required. Send resume to K.P. of HR Department of Hyundai Motor America at 10550 Talbert Ave., Fountain Valley, CA 92728-0850.

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At least a bachelor's or its equivalent in Computer Science, Engineering or a related field and several years relevant experience, including experience with VB, VBScript, ASP, ActiveX, COM+, MTS and SQL 7.0.

Resume and/or cover letter must reflect each requirement above and specify reference code APIE or it will be rejected.

Forward resume to Debra Maron, Director, Human Resources, Vertex Interactive, Inc., 22 Audley Place, Fairfield, NJ 07004.

Programmer I
Vertex Interactive, Inc. has an opening in its Bloomington, Minnesota offices for a Programmer I. Work in cooperation with other Programmers to develop a proprietary logistics application, which tracks shipment and order entry information. Design test plans and test cases, execute tests, identify problems and proposes solutions with regard to new applications. Work in both a client server environment and an internet server environment in order to test the necessary interfaces for customers. At least a bachelor's or its equivalent in Computer Science, Engineering or a related field and relevant experience, including SQL Server 7.0, Visual Basic, WinRunner 7.0, J2K(F-T), 40hr/wk; New Orleans, LA. B.S. Computer Science (or equivalency); 4 yrs experience or related experience in ERP package customization.

Business Systems Administrator needed by a mini mart and retail gasoline sales vendor headquartered in Hayward, CA. Must have Bach. Degree in Bus. Admin with 2 yrs exp in job offered or as a network administrator. Send resume to Vintners Distributors, Inc., Attn: Nareesh Goyal, President, 28456 Century Street, Hayward, CA 94545.

Senior Web Programmer - Website development & enhancement. Code programs using HTML, ASP, SQL, Java Script, VB Script, Java, Visual Basic, MS Access & 3rd party tools. Test, implement, maintain & document systems. Req: Master's degree in Computer Science/Information Systems. 40hr/wk Job/interview site: Virtualab, 20675 S Western Ave #200 Torrance CA 90501

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UCITA

pal Financial Group in Des Moines, Iowa, which is a member of a broad coalition of businesses and groups opposing the measure.

The Uniform Computer Information Transactions Act has been under attack by library and consumer groups and by companies, including giants such as The Boeing Co. in Chicago and Caterpillar Inc. in Peoria, Ill., all of which maintain that the law gives too much power to vendors.

Opponents blocked UCITA in every state where it was introduced last year. Facing the possibility that UCITA could die, its drafting committee met last month and adopted a se-

ries of amendments intended to win support. In particular, the committee reversed course on the so-called self-help provision, which would have allowed vendors to remotely turn off systems in a contract dispute without court intervention. Vendors would now have to go to court when such disputes arise.

"I do know that some of the changes that are being proposed will result in satisfying the concerns of some," said Carlyle Ring Jr., chairman of the UCITA drafting committee of the National Conference of Commissioners on Uniform State Laws, a Chicago-based organization that spearheads commercial law adoption in the U.S. "Others are not going to be as satisfied," he said.

UCITA provides a framework for licensing contracts

Making Change

The drafters of the Uniform Computer Information Transactions Act (UCITA) have made a number of changes to the controversial software licensing law. The proposed changes:

- Prohibit so-called **electronic self-help**, or remote access, which is adamantly opposed by end users. Some opponents, however, question whether the change really closes the door on self-help.
- Allow reverse-engineering for **interoperability**. Previously, UCITA banned it. But some have argued that reverse-engineering for security improvements should also be allowed.
- Make it clear that UCITA is trumped by **state consumer protection laws**. Opponents remain concerned about the potential use of UCITA to shift liability to end users.

that lack certain specific provisions. Opponents say UCITA's default provisions grant several questionable rights to software publishers.

"It looks like they tried to address a lot of different things. Whether they did them right is another story," said Dave Weidenfeld, senior counsel at fast-food giant McDonald's Corp. in Oak Brook, Ill., who said he plans to study the changes.

The changes did satisfy some opponents. Instead of banning reverse-engineering, new language was included to

allow it for system interoperability. That change puts UCITA on par with European law. "We would no longer oppose UCITA" with the new wording, said Jonathan Band, counsel for the American Committee for Interoperable Systems in Washington.

No Changes for Some

However, a key issue that's not addressed in the changes made to date is UCITA's impact on licenses for shrink-wrapped software and software downloaded from the In-

ternet, or so-called click-wrap software. A major intent of UCITA is to make these contracts enforceable. Opponents say the law will still allow vendors to institute restrictive contract terms.

"It doesn't seem to us that [the changes] represent the kind of big compromise that it's being touted as," said Miriam Nesbit, legislative counsel for the Chicago-based American Library Association, who was also speaking for the coalition of opponents.

UCITA does more than make click-wrap and shrink-wrap agreements enforceable, say opponents. It requires a business to meet a legal standard of unconscionability — something that is extremely overreaching and shocking to the conscience — to successfully challenge a contract term, said Principal Financial's McDonald.

If UCITA is widely adopted, end users will be required to negotiate these agreements, something that will increase costs, said Randy Roth, Principal Financial's director of purchasing. ■

Surveys: IT Jobs Found via Networking, not Internet

Job sites especially poor for placement

BY LEE COPELAND

As the economic slump spills into 2002, out-of-work IT professionals may have a difficult time finding work if they limit their searches to job Web sites.

According to Drake Beam Morin, a New York-based outplacement consulting firm, only 6% of company managers found jobs on Internet sites, compared with 61% who found work through networking.

A separate study by CareerXroads, a Kendall Park, N.J.-based consulting firm, uncovered similar results. CareerXroads surveyed nine public companies, which hired a combined total of 63,000 employees last year. Of that total, 8% found their jobs through

Internet sites, such as Monster.com, while 16% found jobs through the corporate Web sites of the firms that eventually hired them. But 19,500 workers, or roughly one-third of the new hires, found their jobs through employee referrals.

Tom Schlunkert, senior vice president of core innovations at Drake Beam Morin, said the survey results underscore the importance of networking for job seekers, particularly in the IT industry, where project- and personnel-management skills often set candidates apart from those with only technical skills.

"Corporate America doesn't appreciate strangers as much as a friendly," said Tom Schlunkert, a senior vice president of core innovations at Drake Beam Morin. "We are by human nature more attracted to people that we know and trust than people we don't." ■

Continued from page 1

Euro

lyn Humphreys, "When you consider the scale of the changeover, this has gone remarkably well."

Longer lines at cash registers due to slow and cumbersome point-of-sale conversion issues were just the first sign of IT hiccups in the retail sector.

Noel Hepworth, euro project director for the European Federation of Accountants, an industry trade group in Brussels, said almost one-third of euro-zone businesses have yet to modify accounting and payroll systems for the new currency.

"A euro-zone company has to be able to draw up their payroll in euros for the month of

January," said Hepworth. "If they've not converted their payroll systems, you must do it manually. Can you imagine doing your payroll manually?"

The true test of IT preparations will come in the next few months, according to Nick Allen, an analyst at AMR Research Inc.'s London office. He said software will be tested in the next three months as businesses begin making out financial reports.

"The biggest risk in information systems is data pollution. I think that a good proportion of companies will have some degree of data pollution because it's so difficult to make sure everything you own has been converted correctly," Allen said.

Sarwar A. Kashmeri, CEO of ebizChronicle.com Inc. in New

York, said the complexity of the problem can change from country to country. For example, the euro is measured in decimal points, which is a cause for concern in some places.

"Spain has never had a decimal point or fractions or cents. All of a sudden, all their cash registers have to be reporting [to back-end systems] and printing decimal points in cents," Kashmeri said.

European authorities had planned for a six-month transition period — from January through June — during which both euros and national currencies could be used, but that grace period will now end Feb. 28 instead. That, said Hepworth, has added to the confusion of when everyone must deal only in euros. ■

FRANK HAYES/FRANKLY SPEAKING

Coming Retractions

DEPARTMENT OF CORRECTIONS: A few weeks back, I wrote about how virus problems at the U.S. District Court's offices in Miami forced court personnel back into a technological Stone Age of paper, paper and more paper. I wrote that column two weeks before it ran and, as one reader recently pointed out to me, it left the unintended impression that the court office's computers were still out of commission a month after the virus hit. They weren't, and I sincerely apologize to the court's IT staff for leading readers to that conclusion — and to readers for misleading them.

Meanwhile, lots of news happened over *Computerworld's* holiday hiatus. So, in an effort to get a jump on any corrections I may need to make when I comment on that news, here are some clarifications, corrections and revisions in advance that should help clear up any forthcoming confusion:

■ In writing about **security holes in Windows XP** — the ones Microsoft learned about on Oct. 29, four days after XP shipped, and didn't tell anyone else about for more than seven weeks — I'll point out that in any other industry, continuing to sell millions of units of a product that the vendor itself admits is critically flawed would be cause for a huge class-action suit.

I'll also suggest that by intentionally exposing millions of XP users to a security flaw that will let crackers grab control of their new PCs, the actions of Microsoft executives are immoral, unethical and unconscionable. That statement will be unwarranted. They're probably just incompetent.

■ When I write about the **security hole in AOL Instant Messenger's latest version** — the one that let bad guys grab control of a user's PC through a feature designed to let users play games together online — I'll suggest that AOL's programmers shouldn't be copying the same boneheaded overflowing-buffer bugs that have caused so many of Microsoft's security problems. That will be unfair. They're probably not copying — just living down to the same standards of, um, quality.

■ If I write about the **new worm called ZaCher** and similar recent viruses that specifically target antivirus software, I'll most likely describe their authors as grotesque, con-

temptible morons without lives, morals or a shred of decency. That will be inaccurate. They're not all morons.

■ Commenting on Apple CEO **Steve Jobs' salary of \$1 a year plus a free \$90 million jet**, I'll point out that Apple's board decided to give Jobs the plane in January 2000, when Apple's stock was flying high. Since then, Apple stockholders have lost most of their investment — including a stunning one-day plunge in September 2000 that wiped out half their money.

But when I suggest that Jobs isn't worth \$1 a year as Apple's CEO, let alone a \$90 million airplane bonus, that will be wrong. Based on what he's done with Apple in the five years since returning from exile, a buck a year is probably exactly what he's worth.

■ Writing about **backers of UCITA who are now scrambling to drum up corporate support** by changing several of the proposed software licensing law's provisions after meeting ferocious opposition in state after state, I'll almost certainly refer to the UCITA proponents — who came up with the idea of booby-trapping software in case users decide not to upgrade — as self-destructive weasels who would kill their customers as gladly as they would eat their young. This will be inappropriate. Weasels don't actually eat their young.

■ Finally, in commenting on **security holes in Microsoft Windows XP, ME and 98, Outlook, IIS and SQL Server**, I'll undoubtedly suggest that, in the face of e-terrorism, using bug-laden Microsoft products now poses a national security risk. That will be incorrect. Microsoft products represent an international security risk.

Glad I could clear all that up. ▀



FRANK HAYES, *Computerworld's* senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

MAINTENANCE worker has his arms full of packages for IT department, so he kicks open the door to IT pilot fish's office. The door slams into a rack, and the DSL router smashes to the floor and begins to bellow smoke. "Well, that's broken," fish sighs. Maintenance guy replies, "How can you tell?"

PROJECT MANAGER pilot fish in charge of point-of-sale systems periodically inventories all POS terminals for his department-store chain. When one isn't working, local techs have to fill out a form identifying the make, model, serial number and what's wrong — typically "power supply failure" or "printer malfunction," says fish. But one response stands out, fish says: "Under Reason for being inoperative" was written, "Fell off back of NCR truck, all over highway."

RURAL TELECOMMUTER calls help desk — the satellite dish that's his only link to the WAN isn't working. Tech pilot

fish runs through the usual diagnostic checklist: "The dish is in good condition? No snow on it, no cows circling?" he asks. "Well, fella, lemme be honest," says user. "I saw this four-point buck walking across my yard, and the thirty-aught-six was right there, so I dropped him." Fish groans, "Through the dish?" "Yep," user admits.

PILOT FISH calls vendor technical support after a fresh-out-of-the-box LCD monitor fails dramatically. "Smoke poured out from the back of the monitor," fish tells the tech support guy. Hmm, says support techie. "Did you plug it in and try to adjust the settings to verify it was bad?"

Break the news to me: **sharky@computerworld.com**. You can start the new year right with a sharp Shark shirt if your true tale of IT life sees print. And check out the fresh chum every day, along with a year's worth of Sharkies on the Web at computerworld.com/sharky.

The 5th Wave



"You know, this was a situation question on my Network+ exam, but I always thought it was just hypothetical."

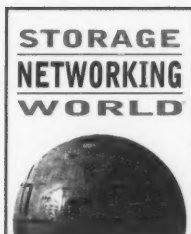
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